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DEPARTMENT OF PUBLIC INSTRUCTION

Commercial Course in Handwriting
for
Junior and Senior High Schools



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FOREWORD

This Commercial Course in Handwriting for junior and senior high schools is the first of a series of State courses of study covering the various subjects of the commercial curriculum. Since this is the first of the series, the constructive criticisms and suggestions of teachers and supervisory officers are particularly invited.

The Department of Public Instruction is indebted to Doctor John G. Kirk, Director of Commercial Education in the public schools of Philadelphia and his able committee for the formulation of this first course.

The introduction that follows, prepared by Doctor Kirk, indicates the procedure followed in the preparation of the course and the particular purpose of this bulletin.

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Superintendent of Public Instruction.

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Introduction

Many thoughtful educators have been convinced that legible handwriting is the result of enough effective motives utilized in handwriting instruction and purposely and systematically applied to all the written work of each day until the habit becomes automatic. The length of time required and the number of motives necessary for this outcome depend upon the individual pupil. For this reason, many pupils enter the junior high school who do not write so well nor so rapidly as they could and a number enter the senior high school with a similar defect. It is with this condition in mind that this course of study was written.

The principles of course of study making followed are, in the main, those advocated and outlined by Doctor A. D. Yocum of the University of Pennsylvania. This course lacks the detail and finish which Doctor Yocum's procedure outlines in that many habits are suggested as necessary for the completion of the handwriting outcomes, while the best procedure is not outlined in detail for each, and a complete list of usable motives is not furnished for the procedures. This omission the committee admits to be a defect. However, the present form had to be considered adequate in order to prevent this bulletin assuming too large a volume.

The purpose of this bulletin is to help teachers who teach penmanship in the junior and senior high schools and for all commercial teachers whose work requires handwriting on the part of the pupil through:

1. A statement of the aims of the handwriting course.
2. Suggestions as to methods and motivation.
3. List of books giving basic psychology and methods for instruction.

The committee acknowledges its indebtedness to the many suggestions of handwriting teachers and supervisors throughout the State, to the professors of the University of Pennsylvania, and Miss Catharine P. Boyle, supervisor of handwriting, in the Philadelphia Public Schools, who assisted in the organization and collection of material.

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COMMERCIAL COURSE IN HANDWRITING FOR JUNIOR AND SENIOR HIGH SCHOOLS

Part I

FUNDAMENTAL PRINCIPLES OF HANDWRITING INSTRUCTION

I. Importance of handwriting in business. A survey* made recently of 22 large business firms in Philadelphia shows that, despite the great increase in the use of recording and duplicating machines, a little more than fifty percent. of the recording work is done by hand. This includes bookkeeping, sales slips, stock records, bills of lading, time sheets, invoice sheets, shipping records, etc. This percentage was not obtained by actual measurement, but from the average of the opinions of the managers of the various departments. However, it is accurate enough to prove that for the coming generation handwriting is a necessary business asset. "When a business man is asked what qualification counts most in employing clerks, he is very apt to say, 'Other things being equal, the good writer gets the place.'""** Since, in 1928, the people of the United States spent \$1,445,573 for steel pens, \$25,035,321 for fountain pens, and \$6,084,315 for writing ink, to say nothing of the large amount for lead pencils, it is quite evident that handwriting cannot be eliminated from the school curriculum.

II. Placement. "Just as reading ability puts the pupil in contact with the wider environment, so handwriting enables him to react to his environment in intellectual forms and thus to complete the learning cycle. Nor is it essential, before he can begin to study, that he should have acquired the skill which penmanship implies. It may doubtless become desirable for him to improve the quality and rate of his handwriting in order to make more effective study possible and it may later become profitable to him to acquire the handwriting skills which a given vocation employs. These are functions for which the secondary school often finds it necessary to become responsible, but they are not critical of the possibility of secondary teaching.*** This quotation from Morrison shows that it may become necessary for the secondary school to provide handwriting instruction for the needy pupils. When pupils enter either the junior or the senior high school, some teacher or committee of teachers should score a written paper in

* Kirk, John G.—Handwriting Survey to Determine Finishing Standards for Philadelphia Public Schools, *Journal of Educational Research*, April, 1926, page 11.

** Hiles, Leta Severence—Penmanship Teaching and Supervision, Page 9.

*** Morrison—Practice of Teaching in Secondary Schools, Page 10.

any subject for each pupil. All pupils whose handwriting is scored less than 60 on the Ayres Handwriting Scale, Gettysburg Edition, or some similar standard, should be given class instruction.

Every commercial pupil has need of handwriting habits which result in a legible and rapid style of writing. The pupil who enters business unable to write rapidly and well is unnecessarily and needlessly handicapped. Every commercial teacher should encourage and give definite constructive criticism to all pupils who write below the business standard, whether the subject being taught is bookkeeping, junior business training, senior office practice, business law, business arithmetic, commercial and economic geography, or any other subject.

A. General Plan. Some definite plan should be worked out by each school to provide instruction for each pupil. The teachers of the English department should be responsible for all the written work handed in to them. A paper surely is not of the highest quality if the reader has difficulty in reading it. The same holds true in history, or in any other school subject. A paper in any subject, poorly written, is never so good as it would have been had it been well and neatly written; and if this principle is made real to pupils, much carelessness in handwriting will be eliminated. Every teacher should show an interest in his pupils and have an adequate knowledge of the mechanics of handwriting in order that he may direct a pupil how to change from careless work to the kind that is neat, legible, and executed at a sufficient speed. "Teachers cannot teach what they do not know."* There is no particular hardship connected with learning to write. Any teacher, who has the will to do, can acquire a fair degree of proficiency in his own handwriting. Careless writing from a teacher is as much a confession of poor preparation as is slovenly grammar or poor pronunciation, and as unbecoming and unprofessional.

B. Program placement. In a small high school, the problem is usually one of finding a place for the subject on the program. With a small faculty and numerous subjects, it appears that there is no time for handwriting, but after a little study of the program, time can always be found. Some schools have solved the problem in the following ways:

1. Where the boys and girls have a gymnasium class on alternate days, the program may be so arranged that the boys can attend the handwriting class while the girls are in the gymnasium, and vice versa. This period is usually a long one, and affords the teacher an excellent opportunity for individual instruction, while pupils are trying to improve their individual faults by copying written work in the various subjects.

* Palmer, A. N.—The Palmer Method of Business Writing.

2. The teacher in charge of the study hall assists the pupils who are writing below the standard in handwriting. The larger high school has need of more than one or two periods a day for handwriting instruction. These may be scheduled at different times, so that all the pupils writing below standard may have the advantage of attending the instruction.

3. Many junior high school principals have found it necessary to provide uniform handwriting instruction for all pupils in their schools. One extra period a week for each class is devoted to handwriting instruction. The best quality of each pupil's writing, as found in the handwriting class, is held as his standard in other written work. As his handwriting improves under instruction, a better product is exacted. In general, no special time allotment can be suggested since conditions in each school vary and each principal or roster-maker will be forced to select the best he can secure from the periods at his disposal.

C. Grade placement. In Rodgers' investigation of the curricular practices of 101 junior high schools of all sizes and types located in thirty-six states, he shows the distribution of constants and variables in 67 junior high schools comprising grades seven, eight, and nine.* From this study, it can be seen that 49.55 percent. of the 67 schools exact penmanship instruction in the seventh grade. The proportion of other constants revealed by this table expressed in percentages are: English, 100; arithmetic, 67; United States history, 67; political geography, 75; drawing, 67; physiology, 50; etc. This is much the same proportion of constants as are found in the average school. Twenty-six and eight-tenths percent. of the schools investigated require handwriting as a constant in the eighth grade; 100 percent. require English as a constant; 45 percent., arithmetic; 73 percent., United States history; about 40 percent., domestic science or manual training; 46 percent., music; and 46 percent., general mathematics. In the ninth grade, the only subject found to be a constant was English. Notwithstanding this fact, the figures for frequency of general science, civics, and algebra stand highest. Handwriting was given as a constant in the ninth grade by only two schools. Rodgers studied thirty-four schools having differentiated curricula and found that handwriting was required in the academic curricula by 61.7 percent. of the schools in seventh grade; 14.4 percent., in eighth grade; and by 11 percent., in ninth grade. In the commercial curricula, 74.1 percent. of these schools required penmanship in the seventh grade; 25.8 percent., in eighth grade; and 16.1 percent., in ninth grade.

From the above figures, it is obvious that many schools consider

* Rodgers, J. Harvey—Junior High School Curricula and Programs, School Review, Vol. XXIX, p. 198-202.

it necessary to teach handwriting as a distinct subject in the seventh, eighth, and ninth grades. Each school must organize its curricular offerings "to fit the well-defined group with its interest, needs, capacities, and individual differences in needs, interest, and capacities."*

D. Present practice. A recent survey, conducted by the Pennsylvania State Education Association and printed in the *Junior High Clearing House*, Vol. III, January, 1929, No. 6, pp. 5-12, shows that 54 of the 80 schools replying to the questionnaire have rated handwriting as a constant in the seventh grade, and 42 of the 80 in the eighth grade, while only 5 require the subject in the ninth grade. The relation of this subject to the other constants in the curriculum is shown in:

Table I—Constant Subjects in 80 Schools in Pennsylvania

SUBJECTS	Grade 7		Grade 8		Grade 9	
	Jr. H.	Sr. Jr. H.	Jr. H.	Sr. Jr. H.	Jr. H.	Sr. Jr. H.
English -----	41	39	40	38	43	37
Mathematics -----	41	38	35	38	33	29
Manual Training -----	29	33	40	34	22	32
Home Economics -----	34	33	41	34	40	32
Penmanship -----	25	29	20	22	3	2
Latin -----	1	0	6	3	13	12
General Science -----	7	6	22	14	23	26
Health (Physiology) -----	26	30	34	25	31	17
Social Science -----	35	32	34	36	31	32
Geography -----	36	37	36	22	0	0
Music -----	40	36	39	34	18	20
Art -----	39	35	40	33	28	18
Spelling -----	31	27	22	23	7	5
Typewriting -----	0	0	1	1	3	1
Physical Training -----	39	32	41	32	40	31
Commercial Work -----	0	0	9	11	3	8

III. Class organization. Pupils who are in the handwriting class should not be retained in the class after they have demonstrated that they can maintain for two months a quality of 70 or above in all their written work. As soon as any teacher complains of a restored pupil's handwriting having deteriorated in any subject, the pupils must report again to the handwriting teacher.

A. Type of classes.

1. Restoration classes are for pupils whose handwriting is below grade standard in speed or quality, or in both. Pupils should be released from this class when the quality and speed of their handwriting has remained at five or ten points, according to the school standard, above the grade requirement over a period of one or two months. Pupils must be made to realize that they must return to the hand-

* Rodgers, J. Harvey—*Junior High School Curricula and Programs*, *School Review*, Vol. XXIX, p. 198-202.

writing class as soon as they write again in a careless manner. Any teacher may report a pupil whose handwriting is unsatisfactory to the principal or to the school advisor.

2. Opportunity classes in handwriting are formed in many schools which offer handwriting as an elective subject. The course extends over half the year and gives pupils who are interested in the subject a chance to improve their handwriting product. Pupils may work to achieve a handwriting certificate of a higher standard than those granted in the elementary school. This affords an excellent opportunity for boys and girls in the general course who are planning to be teachers to improve their handwriting so that later they may make copies worthy of pupils' imitation.

3. Clubs may be organized for those pupils who are interested in improving their own handwriting and who enjoy the subject from an artistic point of view. Pupils in these clubs should aim to acquire advanced handwriting certificates. They may study the history of writing, practice by copying and arranging worth while poems and quotations on paper for decorative purposes, or analyze copies written by experts in the field and strive to imitate them.

IV. Teacher preparation. The teacher of any commercial subject, such as junior business training, bookkeeping, or any other subject, having handwriting as a part of its educational outcome, should have the ability to write well and to help each pupil under his instruction improve his handwriting product. Pupils preparing for vocations which necessitate the use of handwriting should write at a quality of at least 70 on the Ayres Measuring Scale for Handwriting and at a rate of 100 or more letters per minute. Many boys and girls grow careless and produce poorly arranged and badly written papers when they are capable of doing much better work. A few words of advice from the teacher, given in a kindly manner, will encourage the pupil to do careful and neat work.

V. Use of materials. A good textbook is as necessary in the teaching of handwriting as in the teaching of geography, history, or mathematics. In the final analysis, a textbook is really more necessary in handwriting instruction. The pupils who sit directly in the center of the room are the only ones who see the blackboard copy in its true proportion. Those seated at the sides of the room see the copy as a distorted picture in which the size of the letter forms varies according to the distance of the pupil's desk from the blackboard. Because of the manner in which the light strikes the blackboard, there are places where the material written on the board appears blurred and indistinct. The only remedy for this handicap lies in providing a textbook for each pupil. By this means, the pupil becomes acquainted

with exact size, as well as the true proportion of the letters in the words and sentences to be practised. It is impossible, because of the time limitations, for a teacher to write copies on the board in a location that insures the proper visualization by every pupil, or group of pupils; but a textbook copy on the desk eliminates the possibility of wrong visualization. It is merely a vague statement to say to a pupil that his letters are too wide, or too narrow, or that one part is too long, or another too short; but, with a copy of the letter forms being practised before him in a textbook, the pupil can actually measure his product with the correct copy, get definite information, become able to gauge his own mistakes, and, perhaps, gain a new incentive to practice.

A. Blackboard. The blackboard is extremely valuable for class instruction in handwriting. It is indispensable for correction of class or group errors, and it may be used for the purpose of demonstration and illustration during the lesson; but it cannot take the place of a textbook which is necessary to the pupil for analysis, visualization, and comparison. It is much easier to write upon the blackboard than upon paper because the writing on the blackboard of necessity must be larger, and in executing it a free, swinging movement of the arm must be used. Pupils may be encouraged to continue their handwriting practice by allowing them to write on the blackboard when they have reached the discouraging plateau of learning. When they see the results of their own work at the board, they will return to paper practice with renewed zest.

1. **Position.** For blackboard writing, the teacher or pupil should face the board at a distance of almost an arm's length, with the left side of the body turned slightly toward the board. When writing on the board, the downward strokes should be drawn toward the left elbow. This will give the proper slant to the writing. As each word or two is written, the writer should move toward the right. This will keep the line of writing straight. The crayon should not be held like a pencil, but with the top pointing toward the palm of the hand; or, if preferred, the tips of the fingers may be placed along the length of the chalk. Half a piece of chalk, or less, is the best size to use.

2. **Writing.** It is possible for teachers to acquire a good blackboard form of writing by assuming the correct standing position before the board at all times and always using the standard alphabet taught in the school. It is possible for any teacher to produce a good blackboard copy, despite a lack of special training in handwriting, if she desires to do so. Eccentricities in handwriting, erroneously believed to express individuality, should never be used on the blackboard by the teacher.

B. Scales.

1. Purpose of scales. Handwriting scales are of value in that they direct the attention of the teacher to specific defects in the pupil's writing and also to the good points. The use of a scale tends to remove the bias of personal opinion and to substitute that of expert opinion. The teacher should study the scale she is using and be able to analyze each specimen in it for the pupils' satisfaction in order to perfect her own scoring and to enable the pupils to score their own work. The teacher should have the scale displayed in the classroom or kept in a place that will be accessible to the pupils at any time they may desire to use it. If possible, the pupil should have a copy in his handwriting book or in his notebook to which he may frequently refer and make comparisons.

2. Standardized. There are many good standardized handwriting scales available for use by high school pupils. The Gettysburg Edition of the Ayres Scale is convenient in form and is suitable for classroom scoring by pupils of high schools. The scores on this scale are based upon legibility and the amount of time consumed in reading the samples. Other scales are used with much success. Because it has twenty steps, the scale prepared by Daniel Starch and Carl T. Wise is valuable for research work for general purposes in measuring. The Lister-Myers handwriting scale includes qualities ranking from 20 to 90 covering the three items of form, movement, and spacing. The Peterson scale consists of specimens ranging from 25 to 95 in quality. Under each specimen is a brief statement of the defects in the writing which determine the specimen's score. This scale is valuable for self-diagnosis by pupils. Many cities have constructed their own scales. The Kansas City Handwriting Scale and the Boston Handwriting Scale are good examples.

3. Classroom. The pupils in many classes construct scales from their own specimens by direct comparison with a standard scale. Pupils are always interested in making a scale from their own work. Scales may be made by posting the ten best papers. As soon as a pupil produces a paper whose quality surpasses any that is on the scale, the better paper should be used instead of the one formerly chosen for the scale. Pupils should vote on papers, or a committee of pupils may select the ten best, or the five best out of the whole class. Teachers need have no fear as to the judgments of pupils for their selections will be surprisingly accurate. Another device of this kind may be carried out as follows: Eight papers, selected by the teacher which in her opinion most nearly conform to the scores 20-30-40-50-60-70-80-90 found in a standard scale, may be posted in a convenient place in the classroom. The pupils should then strive to replace the papers with ones that more closely match the

specimens in the scale; and papers of pupils whose specimens were selected at first may be moved to a higher position on the scale when they show enough improvement to justify the change; and those which have been posted but do not show any improvement after a reasonable amount of practice may be displaced by pupils' papers that were not selected at first. In this way, the product of the poorer writers will tend to improve and that of the more skillful writers be kept up to the degree of quality once attained.

C. Charts.

1. Alphabet. Alphabet charts are essential as aids in obtaining correct form. They should be placed on the wall in the front of the room and kept there permanently, so that the pupils, by seeing them constantly, may learn to recognize them as perfect copies of the required form.

2. Position. Position charts have a helpful bearing upon the securing of good positions, not only in the handwriting class, but whenever pupils are doing work at their desks. These charts should occupy a conspicuous place in the schoolroom and the pupils' attention should be called to them very often.

D. Paper. Paper used in the handwriting class should be of the best quality. It should have a good glazed surface, over which the pen will travel smoothly and rapidly; it should be ruled with distinctly marked blue lines three-eighths of an inch apart; and, for the purpose of practice, it should be about $8\frac{1}{2}$ " by 11" in size.

E. Pens. A high school pupil should be expected to know how to take care of his pen. Upon its treatment by the pupil depends its duration and usefulness. It should be the aim of the teacher to stress this point emphatically and to instil the idea into the pupil's mind until he becomes imbued with a strong desire to make his pen last as long as possible.

There are a great variety of pens on the market today, and any make, provided it is a pen of good quality, may be selected for the pupils. Stub pens should never be used, since they are not adaptable to muscular movement writing and tend to retard speed. Fountain pens may be used by the high school pupil since they are so generally used in the commercial world today that the necessity for the use of this type of pen may arise after the pupil leaves school and engages in some business occupation. He should, however, have reached a satisfactory degree of efficiency in the use of the steel pen point before he can use a fountain pen with effectiveness. The teacher should inspect all fountain pens used in order to see that they do not require too much pressure, do not produce a line that is too heavy, and do have an easy flow of ink.

F. Pencils. Practice with the use of the pencil should be given to pupils in the handwriting period since they are required, both in school and outside, to use pencils in taking notes, making memoranda, etc.

The type of pencil used should be one with lead that is neither too hard nor too soft. Hard lead pencils produce lines that are too faint to read and require too much pressure of the hand. Soft lead pencils produce lines that are too heavy for artistic appearance and are conducive to closed loop letters and indistinct joinings, both of which destroy legibility.

G. Ink. The amount of ink to be taken up by the pen in one dip, the quantity of writing that can be done with one dip of the pen, and the difference between a good ink and a poor one, as determined by experimentation, are things that high school pupils can be trained to judge for themselves.

Only a good quality of ink should be supplied to pupils and the condition of this should be watched by both the teacher and the pupils. Watering the ink and letting it stand over night is a good way in which to keep the ink from becoming too thick. Care should be taken, however, not to carry this thinning process too far.

VI. General methods. The suggestions given in this course may be used by any teacher as material with which to improve the handwriting product of the pupil during the presentation of any subject. Very short teaching units are organized, so that the teacher may introduce a realization for improvement to the class in one or two minutes each day. A realization of one point presented to the pupils when the next day's assignment is being made will help them improve their handwriting product when they are preparing their next lesson.

Encouragement in all their efforts, along with constructive criticism, is the best plan for those pupils who are trying to improve their handwriting. Pointing out the best written words or lines and calling attention to all other good points, will prove an incentive for the pupil to go on. Every teacher should be acquainted with the four steps in building a standard as proposed by Professor A. D. Yocum, of the University of Pennsylvania. These are: (1) Attainable steps in the probable order of their attainability; (2) a personal realization of the attainability of the next step; (3) a controlling wish to achieve and the will to persevere; (4) constant reminders to try. Constant in handwriting, as all teachers realize, means in every written exercise, not only at the beginning, but throughout the various stages of the exercise. A word of praise for one pupil's good posture or for another's good forms may spur the rest to zealous endeavor. The teacher should always put carefully written copies on the blackboard. Very little time, if any, is saved by the teacher who writes hurriedly

and carelessly before the class, but the time and effort consumed by the pupils in reading careless blackboard writing is an item of consequence. The wrong moral effect on the mind-set of the pupil who knows that his careless work will be accepted by the teacher should be guarded against.

A. Scoring the handwriting of the new pupils. When a pupil enters either the junior or the senior high school, his writing should be scored by a teacher or by a committee of teachers. If possible, a private conference should be held with each pupil who is writing at a quality of 60 or below. During this conference, the teacher should give definite directions for the pupil's improvement of his own work. The directions should be written on the paper under discussion and given to the pupil at the end of the conference. The following directions, or similar ones, should be used:

1. Make the minimum letters a, e, i, u, v, m, n, higher on the line.
2. Make d, t, and p, one-half the height of the writing space—
i. e. higher than a, e, i, u, but shorter than the loop letters, l, h, k, b, f.
3. Make k with a smaller hook.
4. Make r with a narrower shoulder.
5. Make the over part of the running r more rounded. Retrace the slant line of running r more slowly.
6. Shorten the y loop.
7. Make m and n rounder.
8. Make the lower loop of f shorter.
9. Close f on the base line.
10. Make the crossing of the t shorter.
11. Dot your i's and j's.
12. Cross t with a straight line.
13. Close a, d, g, o, and q at the top.
14. Keep the letters on the line.
15. Give less slant to loop letters.
16. Finish the last stroke of every word.

B. Method of procedure. In the junior high school, it may be necessary to give class instruction in handwriting. If at first pupils cannot assume the correct handwriting posture, training must be given until they are able to do so. Each pupil should be led to know his outstanding handwriting difficulty. If the teacher feels it will prove beneficial, she should count for the class during a portion of the period; this will enable each pupil to retain his individual goal and also to get the direct benefit of the correct count.

Should a group of pupils enter any grade with a noticeable deficiency in speed or quality, progress may be increased and time saved

if the greater portion of the class period is devoted to mass instruction. For the use in classes of this type, the following procedure has been outlined:

1. Preparation. Lines should be drawn on the board five inches apart for the teacher's copy. Papers and pens should be distributed. The direction, "Get ready for writing," should be given. Pupils should respond by clearing the tops of their desks, placing the handwriting material on their desks, slanting the paper properly, and opening the writing books to the page announced by the teacher.

2. Opening of lesson. Give the direction, Position. The pupils should lean back in their seats with their feet flat on the floor, hips back, and hands relaxed in their laps. They should watch while the teacher writes the first copy on the board. The size of the drill or word and the number to be made on a line, or to a section of a line, should be stressed. Then, as an approach to the handwriting practice, the teacher should count quickly and the pupils give the responses as follows:

One. The pupils should bend their bodies forward from the hips, keeping their heads up and letting their arms drop against the sides of their bodies with arms and fingers relaxed.

Two. The pupils should raise their arms to a level position, forming right angles at the elbows, with the left hand slightly in advance of the right.

Three. The pupils should drop their arms on the desk.

Four. The pupils should pick up their pens with the right hand and resume position as in Three.

Ready. The pupils should begin to roll on the musele using the dry pen and continuing for twenty or more counts. The teacher should quickly make necessary corrections in position or movement before the actual writing begins.

Write. The pupils should begin to write with the teacher's count.

The teacher should insist upon the papers being shifted two or three times as the pupils write across the line.

3. Development of lesson. In presenting a letter, definite statements should be made by the teacher or secured from the pupils in regard to:

- a. The direction and position of the beginning stroke.
- b. The height, width, and slant of the various parts of the letter.
- c. The important checks in motion.
- d. The count.
- e. The number of letters on a line.

- f. The direction and position of finishing strokes.
- g. Speed.

The pupils should count with the teacher as often as possible. One row of pupils may count for one line of writing, the next row for the second line, and so on; or, the boys may count, then the girls. The most progress toward relaxation is made where the pupils enter into the counting.

To check the count, the teacher should count for the class for 15 seconds and decrease or increase the count as the check-up shows the need. Pupils love a contest, and keeping up to the count is a game they enjoy when the time element enters into it.

When a line of the letter has been completed, the class should compare the forms made with the copy on the chart or in the book and put a check mark under the best-made letter on the line just finished. On the next line, pupils should try to make a larger number of well formed letters. At the end of the lesson, they should measure their progress by comparing the last line with the first.

Most drill should be given on the correction of the outstanding errors which may be: wrong slant, incorrect size, poor form, or poorly made beginning and finishing strokes.

The teacher should spell the words as pupils write them, keeping to the correct speed count. The first line may be spelled a trifle slower than the others, but before the close of the lesson the pupils should be shown how they may improve the quality of their work by using free arm movement with proper speed.

4. Closing of lesson. At the close of the lesson, the pupils should write their names, the date, and the grade, on the paper according to the directions for heading as followed by the school. This should be followed by the directions: Clean pens. Close inkwells. Blot papers. Pass materials. Pupils should be trained to move quickly in the collection of papers and pens. If this is done, more time can be devoted to the actual development of the lesson, papers and pens will be kept in better condition, and the possibility of the handwriting class' trespassing upon the time of another class will be eliminated; and furthermore, the pupils will gain in three things essential to efficiency; promptness, carefulness, and saving of time.

a. Distribution of materials. A good plan for the quick distribution of papers is to have the papers previously counted according to the number in each row and arranged in piles by crossing one set over the other. A monitor places these papers on the center rows of desks, or on the front or back rows. These papers are passed at a given signal, from one pupil to another, until all rows have been reached. Then, at a signal for collection, the papers on the front

desks should be passed to the left or to the right, as desired. When all the sets have reached the desk either in the right- or left-hand corner of the room, the papers of the whole class will be in one pile for collection. This plan should be applied to the collection of pens, also. In either case, the time consumed will be reduced to a minimum.

Another suggestion suitable for rooms that have an even number of rows is the following: At a given signal, pupils should pass papers from the outside rows at the right and left sides of the room toward the center of the room from row to row. When the papers have reached the two middle rows, the pupil sitting in the back seat of each of the two middle rows should quickly collect the sets of papers lying on the desks in these rows, moving toward the front of the room until all are collected. Pens may be collected in the same manner.

C. Movement drills. "A movement drill in writing is the repetition of a single stroke or character with a view to making the process automatic. It may be the repetition of a straight line, an oval form, a letter, a combination of the straight line and oval, or the combination of the oval and a letter."^{*} The straight line and the oval drills are usually designated as general movement drills. The purposes of the general movement drills are : (1) To aid in developing light, smooth, uniform lines; (2) to help in increasing speed; and (3) to engender the easy, relaxed motion known as movement control. The making of ovals has no value in itself. Many pupils strengthen wrong habits when they are allowed to make incorrect ovals over an unlimited period of time. Pupils learn to write by writing, not by making ovals during the greater part of every writing period. Important points to be insisted upon during the oval practice are: (1) Correct posture; (2) correct hand position, with relaxed arm movement; (3) proper slant; (4) oval forms, not too wide nor too narrow; (5) lightness of line; (6) compactness; (7) optimum rate of speed, 200 downstrokes per minute. Tracing an enlarged form of the letter that is to be practiced often serves as a good movement drill and helps to create a better image of the letter form in the mind of the pupil. The minimum letters may be enlarged to fill the space between two blue lines, the upper and lower loop letters enlarged to occupy two full spaces, and the semi-extended letters, t, d, p, to fill one and one-half spaces, as shown in Figure 1.

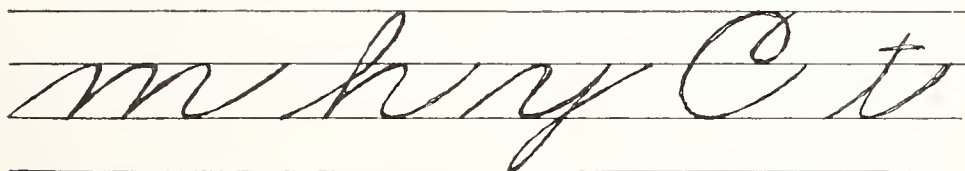


Fig. 1—Enlarged Forms Serve as Good Movement Drills

^{*} Lister, C. C.—Muscular Movement Writing Manual, p. 19.

Capitals enlarged in the same manner offer an excellent opportunity for the development of relaxation, and provide practice on form and movement in one drill.

D. Counting. The teacher may regulate the time of movement and speed drills by means of a vocal count, by lightly tapping with a pencil, or occasionally, by using the phonograph or metronome. The best results are obtained by the well-modulated, evenly-timed voice. By effecting a series of slight inflections, pauses, and periods of emphasis while counting, the teacher will be able to secure correct closings, encourage graceful curves, and check movement for the more difficult parts of a letter or word.

The general effect of counting is the obtaining of unity; that is, all the members of the class work together as one. This unity, or spontaneous response to the teacher's direction, in some indefinable manner carries over into the students' individual work, with beneficial results. Counts are of two kinds: numerical and descriptive. The numerical count should vary according to the letter to be written; for instance, in the one-two used for the count of capital A, the one should be a longer count than the two, because the stroke of the first part of the letter requires a longer time in the making, and there should be a check of the voice after the one to indicate the check in movement at the top of the letter. In the count of one-two for the capital C, there should be no apparent check in the voice, but the sound of one should slur into the sound of two, and the latter sound should be no longer than the former. Each letter has its own count, and this count must be learned by the teacher and practiced by her until she is sure that she has mastered it herself before she attempts to use it in class with her pupils. The descriptive count is the most effective for corrective drill. The capitals H and K will serve as an illustration. In these letters, the downward stroke of the first part of the letters is often curved to the left instead of being made a straight line and kept at the proper degree of slant. To help bring about the correct form, the teacher may use a type of counting that differs from the numerical by saying: Loop-slant, or Loop-straight, instead of one-two. By means of this count, the pupil will be led to slant the downward stroke and make it straight, as it approaches the base line. A descriptive corrective count may be applied to eliminate errors which cause defects in any capital or small letter.

In counting for words, the speed is regulated best by the naming of the letters. In doing this, a longer count should be allowed for the letters that require a longer time in the making. For example, in the word moon, the letter m should have a slightly longer count than any of the other three letters.

E. Individual Instruction. It may be necessary at times to use the individual-practice plan in the formal handwriting period. However, for general purposes of posture and movement, the entire group, or sections of the group, may be taught together. The individual-practice plan may be conducted somewhat along the following plan:

1. Let each pupil have an objective goal.
2. Give him a plan of practice whereby he may eventually reach his goal.
3. Have him frequently measure and record his own success or failure.
4. In the event of the pupil's success, present a new and slightly more difficult objective and stimulate him with assurances of ultimate success.
5. Have the pupil continue until the final standard is reached.
6. In the event of failure, select some letter or word that is well written; tell the pupil that if he can write well in one instance, as in the case of this letter or word, he can multiply the instances; assist him by definite instructions for practice and encourage him to try again. The teacher should continually endeavor to inspire the pupil in all his efforts; he should never scold, nor give destructive criticism. Every pupil has a right to succeed, and the teacher can help him do so by arousing in him the desire to continue and the will to persevere. "Nothing succeeds like success," is an old adage which holds in handwriting instruction. People like to do the things they know they can do, and if pupils are made to feel that they can write, and write well, they will want to do so and will, of their own volition, continue to increase the amount of their effort until the correct habit has become automatic.

F. Individual correction by teacher. If the teacher can write well enough to set an exact copy for the pupil or to make corrections in red ink over the pupil's incorrect forms, he can accomplish much for the pupil in a short time. It is a good plan to put the corrections on the paper in the presence of the pupil, for, in addition to the interest aroused in him by the red ink corrections, an impression will also be made by the verbal suggestions. A corrected paper returned to the pupil occasionally, will give him many useful ideas, but too many corrections at one time may have a tendency to discourage him, unless the well-executed parts are taken into account and distinguished in some way.

G. Individual scoring by pupils. If possible, the pupils should analyze and score their own handwriting. Those who have had ad-

equate instruction may map out a plan for improving their own work. The teacher should follow Morrison's mastery formula: "Pre-test, teach, test the results, adapt procedure, teach and test again to the point of actual learning." After the pretest, the pupil should have a definite knowledge of the outstanding defects of his handwriting, the cause of these defects, and a thorough acquaintance with a definite plan for overcoming his deficiencies. The more thoroughly the plan for improvement is worked out, the quicker and more effective will be the progress of the pupil.

VII. Standards. Handwriting, like every other school subject, is taught best when both teacher and pupil know definitely what is expected of them in the way of results, and what their positions are in reference to the anticipated goal. The two elements usually measured are speed and quality; but, from the standpoint of health, position and movement are equally as important, and equally as measurable. Pupils are always interested in their own progress; and, since it is possible for secondary school pupils to measure these four factors in their own handwriting, they will derive considerable enjoyment from doing so. Each pupil should understand definitely what the adult standards are in regard to quality, speed, posture, and movement, and should check his progress at regular intervals until he has firmly established correct handwriting habits.

A. Posture standards. Since poor posture may have a decidedly bad effect upon health, it is wise to exact good posture in so far as straight spines, level shoulders, and high heads are concerned. The best way to help pupils in this respect is to call their attention to wrong posture in an indirect manner by giving some general direction, such as: Heads up. Feet flat. Elbows square. This will serve as a "reminder to try." Each pupil should use the hand position that is best adapted to his type of anatomical build. Slight variations should be permitted to allow for individual differences of hand structure.

B. Evaluation of standard handwriting posture. Too much time will be consumed if the teacher attempts to score all the handwriting factors in one period; and it would be impracticable to do so, because few pupils would be found poor in all phases of posture. The following score card has been worked out for the use of the pupil in scoring his own posture. It may be used occasionally by the teacher to score one phase of a pupil's posture.

		Perfect score	Individual score
1.	FEET Both on floor ----- 10 One flat, heel, or toes of one raised ----- 8 Heels touching, feet crossed ----- 6 One flat, knees crossed ----- 5 Toes of both touching ----- 2 Both feet raised ----- 0	10	Score one only
2.	TRUNK a. Spine straight, hips touching back rest ----- 10 Spine curved slightly, body not touching desk ----- 5 Chest touching desk in front -----	10	Score one only
3.	ELBOWS a. Both elbows right-angled, equally on or equally off the desk ----- 5 Both elbows not right-angled ----- 0 b. Elbows 3 inches or less off desk ----- 5 Elbows more than 3 inches off desk ----- 0 c. Left hand holding paper at proper place ----- 5 Left hand at edge of, or off desk ----- 0 d. Both elbows 5 inches or less from body (measuring to inside of arm) ----- 5 Both elbows more than 5 inches from body ----- 0	20	Score a, b, c, d One in each
4.	HEAD Head erect ----- 10 Head less than 16 inches from desk, head not turned right or left ----- 8 Head 12-16 inches from desk ----- 6 Head less than 12 inches from desk ----- 0 Head turned to right or left ----- 0	10	Score one only
5.	FOREARM a. Muscle resting on desk ----- 8 Muscle raised or forearm off desk ----- 0 b. Hand in natural position to glide across paper ----- 7 Hand resting on side ----- 0 c. Last two fingers slightly curved ----- 5 Last two fingers touching palm or straightened ----- 0	20	Score a, b, c One in each
6.	PENHOLDING a. Index finger 1-1½ inches from point ----- 5 Index finger less than 1 inch from point ----- 0 b. Thumb opposite or between 1st and 2nd joint of index finger ----- 5 Thumb close to tip of index finger ----- 0 c. Index finger curved, tip resting on penholder ----- 5 Index finger angled, first joint resting on penholder ----- 0 d. Second finger at side of penholder ----- 5 Second finger on top of penholder ----- 0	20	Score a, b, c, d One in each
7.	PAPER PLACING a. Lower left-hand edge of paper pointing toward center of body ----- 2 b. Lines of writing approximately at right angles to forearm ----- 5 Lines of writing parallel to side or front of desk ----- 0 c. Line of writing under natural position of hand ----- 3 Line of writing placed above or below natural posi- tion of hand ----- 0	10	Score a, b, c One in each

Fig. 2—Score Card for Evaluation of Standard Handwriting Position, Arranged by Catharine P. Boyle, Supervisor of Handwriting, Philadelphia

C. Standard alphabet forms. Every school system should have a standard alphabet of its own. The forms in these alphabets should be taught to every child from the first grade up. The primary forms

may be more simple in execution than the upper grade forms, but from the fifth grade on there should be no change of letter forms. The only excuse for forcing any pupil to change a letter form during the secondary school period is the fact that the one he has been accustomed to use is illegible. Some pupils in the secondary school may manifest a desire to change some of their capital or small letter forms. They should be permitted to do so, unless they are unable to master the styles they choose and it becomes difficult to distinguish them from other letter forms. The time consumed in the handwriting class should be devoted to improving the speed and quality of the pupils' handwriting and not wasted on acquiring skill in making new forms. Some letter forms require less time for execution than others. Pupils, individually, should record the time required to write various letter forms in order to learn whether or not they can increase their speed by using another and more legible style.

All alphabets have good points, and a pupil should be allowed to use his individuality in selecting those forms which appeal to him most. Pupils will use the forms they select for themselves when they enter the business world, or any other field of work, after leaving school. It is unnecessary, therefore, for them to spend their time in learning to master certain forms arranged in special groupings while in school. The business man merely desires writing that is rapid in execution and which can be easily read; he seldom has any special ideas on handwriting, and rarely requires any particular forms. The selection of preferred letter forms also extends to the handwriting used in social correspondence. This is, therefore, another reason why the pupil should be permitted a choice of forms during the time he is developing his handwriting in school.

D. Quality standards.

1. Social. For pupils entering vocations in which handwriting is not considered a necessary factor in preparation, the generally accepted standard is quality 60 on the Ayres Handwriting Scale, Gettysburg Edition. When analyzed, the 60 specimen reveals a copy having fair alignment, formation of the letters 60 percent perfect, most of the oval letters, o, a, d, g, q, s, closed, practically all finishing strokes properly made, few penlifts in the words, little angularity, 60 percent of the main slant strokes perfect, all connective slant strokes correct, spacing fair, and quality of line good.

2. Business. The pupils who will use handwriting in future business positions, such as bookkeeping, clerkship, or salesmanship, should acquire a quality of 70 on the Ayres Measuring Scale for Handwriting, Gettysburg Edition, and a rate of at least 100 letters per minute. Figures should be well formed and made rapidly.

E. Pencil-writing. Pupils should realize that pencil-writing should be as carefully and as neatly written as writing that is done with ink.

Most people use a pencil as much, if not more, than a pen. In business, much pencil-writing is done in duplicate, that is, by using under the plain sheet a carbon sheet which produces an extra copy. Nearly all salesmen and store clerks are required to write duplicate memoranda of their selling transactions. Almost all pencil-writing, but especially duplicate writing, requires a heavier pressure on the pencil than does pen-writing. If the pencil-writing is done at a desk, the principles of correct penholding and paper placing can be applied, but when pencil-writing is done in a salesbook, the book has to be placed upon a counter in various positions; at other times, a notebook must be held in the left hand; in either case, some adjustments must be made. Writing in small notebooks or salesbooks is most easily done with a mixture of finger movement and arm movement. The hand must be raised slightly from the notebook in order that the fingers will have enough freedom. The little finger, or the little finger and the one next to it, should become both a moving and a stationary rest which keeps the hand free from the paper. The shifting of this stationary rest usually takes place between the words being written. Employers frequently complain that clerks and salesmen cannot produce neat work. Because of this, whenever possible, practice should be given to pupils in writing in salesbooks containing duplicate sales slips. Practice should be given, also, in writing with a pencil during the handwriting period as a preparation for using the pencil while taking notes from dictation, writing answers to examination questions, etc.

Pupils should have a full realization of the fact that legible pencil-writing is necessary in social and in business life. A study made by the Division of Commercial Education in Philadelphia, published in *The Journal of Educational Research*, April, 1926, revealed that in 22 large business firms the amount of pencil-writing done was about equal to that done with the pen. In home life, there are many uses for this kind of writing; for instance, the making up of laundry lists and grocery lists, taking telephone messages, etc. Pupils should be given an opportunity to practice writing in notebooks while standing. The teacher should play the part of the customer and dictate a name, address, and a list of articles. Practice under the following conditions should also be given: (1) Writing in a notebook on an arm-rest chair; (2) writing notes in a laboratory or a lecture room; (3) taking notes in a book held on the lap; (4) writing in a small space while holding the telephone receiver in the other hand.

F. Movement standards. Each pupil should realize that muscular movement means a movement produced by the large muscles of the upper arm. In muscular movement, the muscles of the forearm just

below the elbow should rest on the desk, in a relaxed condition, and should act as a cushion on which the bones of the forearm roll and glide.

If the pupil grasps his right forearm with his left hand, and opens and closes the fingers of his right hand, he will feel the muscles of the right forearm move the fingers of the hand. If he were to write with finger movement, he would use these muscles of the forearm. Therefore, to secure muscular arm movement the pupil must use the forearm muscles only as a cushion, and not in the actual writing.

The majority of pupils who enter either the senior or the junior high school will have acquired a fairly good movement if they have had consistent and effective instruction in the grades. The movement is best acquired by teaching pure muscular movement in the grades. If the pupils do not use good movement, the high school period is not too late for him to acquire it. When the pupil realizes the advantages of muscular movement and strives to use it every time he writes, he will acquire proficiency in an amazingly short time.

G. Speed standards. Every high school pupil should be able to write legibly at a rate of at least 100 letters per minute. For the commercial group, this speed may be increased to 120 letters per minute. Modern duplicating machinery, with its speed and product so easy to read, has increased rather than decreased the demand for rapid, legible writing. Speed tests may be given at the end of the formal handwriting lesson. Each pupil should reckon his own speed and be required to keep a record of the score he makes. Sometimes the teacher can help the pupil secure the feel of 100 letters per minute by spelling for him at this rate. By starting each new word when the teacher begins to spell it, and leaving the words unfinished if he cannot keep up with the teacher's count, the pupil can discover the particular words that retard his speed because of the difficult letter combinations they contain. Very often it will be found that slow writing is merely a habit that can be overcome, and not a direct handicap, as it is sometimes considered.

VIII. Assumptions and Outcomes.

A. Statement of assumptions. The following statement of assumptions and principles has been agreed upon as a basis for the organization of this course:

1. Every student in the junior and the senior high schools who is not physically handicapped can learn to write legibly and neatly. A quality of 60 on the Ayres Scale, the recognized social requirement, should be the standard for all students in these schools.

2. Every commercial pupil who takes the clerical or bookkeeping course should maintain a quality of at least 70 on the Ayres Scale for Measuring Handwriting, Gettysburg Edition.

3. The fact that pupils have been taught several systems of writing in the elementary school is no excuse for their producing poor writing in either the junior or the senior high school.
4. The fact that a teacher has been taught several methods of handwriting himself—perhaps vertical at one time, medial slant at another, and Spencerian at still another—cannot be considered a legitimate excuse for a poor handwriting product on his part.
5. Handwriting is distinctly an individual product. No system, however well or poorly taught, will in any way affect the individuality of any pupil's handwriting. Pupils may use the same letter forms and conform to the same size, slant, and movement and yet their products will vary because each pupil's handwriting is the work of a different individual with certain peculiar traits in his physical make-up. Only to the superficial observer will the writing of all pupils appear the same.
6. A pupil who has mastered a certain alphabet elsewhere should not be required to learn a new one in either the junior or the senior high school. If the forms he has already learned are legible and neat, he should be allowed to use them even though they are not duplicates of the forms in the alphabet used by the school.
7. No large amount of practice on drills and exercises is necessary. Pupils learn to write words and paragraphs by giving attention to the words and paragraphs they write during every period of the day, not by practicing ovals, straight lines, and drilling on single letter forms. The material used for practice should frequently be selected from the daily work in subjects other than handwriting.
8. Since it has been definitely proved that teachers' marks on English papers are raised by neat, legible handwriting and lowered by careless, illegible handwriting* an obligation rests upon every teacher of every subject to exact a good quality of handwriting from every pupil.
9. A paper in any subject, carelessly written, is never so good a paper as it would have been had it been neatly and carefully written.
10. Every pupil should be held responsible for the quality of his handwriting at all times. A high standard of perfection should be held up before every pupil. He should not be allowed to consider a mediocre piece of work as good enough.
11. The central aim of this course is to arouse in the pupil a belief in his own ability, in the value of handwriting, and in the necessity

* See H. W. James. *The Effect of Handwriting on Grading*—*The English Journal*, vol. 16, 1927, pp. 181-185.

for legible handwriting; and to awaken in him a sense of responsibility toward all written work.

12. Praetieal skills, habits, and right attitudes are, in the main, more important than teehnical knowledge.

13. The instruction should begin at the level of the needs of the pupil, and the pupil should progress at his own rate.

14. Instruction in handwriting in the secondary school is not neecessary for all pupils, but only for those whose handwriting does not meet the sehool or business standard in speed and quality. All sueh pupils should be required to attend the handwriting elasses of the sehool.

15. Regardless of the quality or of the individual peeuliarities of a teaeher's style when he writes on paper, it is possible for him to plaee a legible handwriting produet on the blaekboard after a little study of the essentials of good handwriting and praetiee in making the required forms.

Just as illegible writing on paper is eonsidered bad form in soeial etiquette, so, also, poor blaekboard writing may be eonsidered a soeial error in the sehools. It is likewise bad pedagogy. Any teaeher, who in his own handwriting, plaees eeentrieties of form before the pupils on the blaekboard, proves that his work is not worthy of imitation and thereby loses, through his indifference, the opportunity of be-eoming an inspirational teaeher.

16. Since mueh of a pupil's time in sehool is spent in writing, and since mueh of the time of workers in the eommeereial world is spent in writing, sitting and writing posture is exeeedingly important.

B. Statement of outcomes. Every eommeereial pupil in the junior and the senior high sehool should beeeome equipped with the following handwriting abilities and habits:

1. The ability to write automatically a plain museular arm movement type of handwriting at a quality of 70 on the Ayres Handwriting Seale, Gettysburg Edition.

2. The ability to write legibly at a fair rate of speed—100 letters per minute.

3. The ability to write with ease and endurance.

4. The ability to maintain a healthful posture in all written work.

5. The habit of writing well in all written work.

6. The habit of self-eritieism and honest self-evaluation toward his own quality and speed.

7. The habit of carefulness and neatness in the arrangement of written material on paper; for example, in the spacing of words, the spacing of lines, the making of margins, in letter formation, etc.

8. The ability to write legibly under handicaps, such as writing down messages received over the telephone, making notes in a notebook held on the lap, taking lecture notes, etc.

9. The desire to improve letter formation in order to satisfy the aesthetic sense.

10. The joy of achievement that comes from the acquisition of a worthy accomplishment.

11. The attitude of respect and consideration for the reader's eyesight and time, that will cause the writer never to fail to present the reader with an easily read copy.

12. A thorough knowledge of the mechanics of writing and the development of skill in their use.

C. Development of outcomes. In order that the desired outcomes in handwriting may result from the time and effort spent by the pupil in school, there are certain impressions which every child must experience through feelings. These impressions according to Professor A. D. Yocum of the University of Pennsylvania include "realizations, sensings, attitudes, motives, and standards." It must be realized, as the same authority claims, that "every controlling impression is a feeling made strong enough to be useful in the way which led to its selection." Since knowledge does not control conduct or behavior but feelings do control them, it should be remembered that if the teaching material "is a mere fact or reason and not felt, the feeling must be developed." Provision must be made by every teacher for the development of the feeling through experience repeated at frequent enough intervals to have it become strong enough to remain permanently. For example, if the teacher is endeavoring to teach the fact that the letters a and o must be so carefully formed that there will be no trouble in distinguishing them in rapid writing, the impression is not strong enough to control the writing conduct of the pupil until he feels the need of being careful in the formation of all the a's and o's in his writing. He must be given considerable experience in checking his mistakes and in analyzing the reasons for his errors, and he should be made conscious, also, of his progress, in the various stages of his practice. By this method of watchful and frequent repetition, the pupil will become able eventually to form all the letters legibly.

D. Control. Realizations are one of the forms of impression-control; they are established in the minds of the pupil by the teacher "where the suggested feeling is a feeling of reality resulting from the

presence or the recall of enough experiences." "In realizations which are mere understandings, enough experiences result from including additional different experiences until enough real things associated with the thing to be made real extend its reality until it is real enough." For example, an understanding of correct hand position is arrived at by making it include experiences which give reality to the wrist position, correct forearm placing, the best position of the thumb on the penholder, the placing and curving of the first finger, the position of the index finger, the curving of the other fingers, the position and movement of the nails, etc.

E. Achievement. Achievement is attained by constant repetition and keen observation. "In realizations that are to become controlling realities the same feeling is repeated again and again as the result of different experiences, until it is felt strong enough to control, even to the extent of overcoming opposing feelings." For example, the realization that the hand moves across the paper most efficiently for ease, speed, legibility, and endurance when poised on the nails of the last two fingers is gradually made controlling through its being repeated as a series of experiences with a large amount of writing in which the pupil checks up: (1) The amount and cause of muscular fatigue; (2) the nail progress across the page; (3) the degree of legibility acquired by the hand sliding on the nails with that produced when it does not; (4) the appearance of the hand at various stages, etc. The result is the achievement of the aim.

IX. Practical uses of handwriting. This course is based on the belief that handwriting is utilitarian in character, but that it can be developed into an art and become a source of delight to the pupils by giving to them the sense of enjoyment through personal achievement.

A. General. The following are a few of the many uses of handwriting in the life of the average person:

1. In school:
 - a. Class notes.
 - b. Assignments to be handed in.
 - c. Personal notes—organization of assignments for study.
 - d. Examinations.
 - e. Library notes.
 - f. Articles:
 - (1) For school paper.
 - (2) For school or social clubs.
 - (3) For class reports.

2. In the home :

a. Lists :

- (1) Shopping.
- (2) Grocery.
- (3) Laundry.
- (4) Duties (for self or servant).

b. Recipes :

- (1) For personal use.
- (2) For friends.

c. Telephone :

- (1) Memoranda.

d. Expense records.

3. Social :

a. Letters :

- (1) Friends.
- (2) Relatives.
- (3) Sick friends.

b. Invitations :

- (1) To tea.
- (2) To parties.
- (3) To dinner.

c. Notes :

- (1) Of acceptance.
- (2) Of regret.
- (3) Of thanks.
- (4) Of condolence.
- (5) Of congratulation.

d. When traveling :

- (1) Letters home.
- (2) Notes to friends.

e. Seasonal :

- (1) Christmas cards and packages.
- (2) Easter greetings.
- (3) New Year greetings.

f. Club records :

(1) As secretary :

(a) Minutes.

(b) Letters.

g. Personal business (independent of occupation or profession) :

(1) Check book :

(a) Checks.

(b) Stubs.

(2) Receipts :

(a) For services.

(b) For loans.

(3) Budgets.

(4) Memoranda :

(a) Insurance records—dates of payment and amounts :

Automobile.

Health.

Life.

Fire.

Accident.

(b) Building and Loan—dates of payment and amounts.

(c) Taxes—dates when due and amounts.

(5) Record of automobile expenses.

(6) Statement of personal finances.

B. Business. Pupils should realize that regulation forms are frequently written by hand in the following business positions, as illustrated by the following list :

1. Messenger :

a. While-you-were-out slips.

b. Addresses on packages.

c. Written notations of messages.

d. Memoranda of work done.

2. Billing clerk :

a. Handwritten bills.

b. Computed extensions.

c. Verified-and-checked bills.

d. Addresses on envelopes.

3. File clerk :

a. Cross-reference sheets.

b. Index cards.

c. Code letters.

d. Out-guides.

e. Tickler file.

4. Mail clerk:
 - a. Inclosures to be forwarded and to be received.
 - b. Incoming records under separate cover.
 - c. Outgoing records under separate cover.
 - d. Addresses on packages.
 - e. Addresses on envelopes.
5. Sales clerk:
 - a. Sales checks or slips.
 - b. Tally records.
 - c. Stock requisitions.
 - d. Sales order register.
 - e. Filed orders.
6. Purchase order clerk:
 - a. Price quotation tabulations.
 - b. Catalog markings.
 - c. Catalog file-records.
 - d. Purchase orders.
 - e. Purchase order register cards.
7. Receiving clerk:
 - a. Receipts for shipments received.
 - b. General incoming shipment records.
 - c. Individual incoming shipment records.
 - d. Records of irregular shipments.
- e. Notices to department ordering goods.
- f. Transportation invoices.
8. Stock clerk:
 - a. Records of goods received.
 - b. Tags for goods.
 - c. Shelf tags and bin tickets.
 - d. Stock records.
 - e. Purchase requisitions.
 - f. Inventory records.
9. Shipping clerk:
 - a. Individual outgoing-shipment records.
 - b. Package addresses.
 - c. Bills of Lading.
 - d. C.O.D. express envelopes.
 - e. C.O.D. mail-cards.
 - f. General shipping register.
10. Invoice clerk.
 - a. Invoice items.
11. Entry clerk:
 - a. General journal entries.
 - b. Purchases journal entries.
 - c. Sales journal entries.
 - d. Cashbook.
12. Cashier:
 - a. Daily reports.
 - b. Check sales slips.
 - c. Fidelity bond application.
 - d. Deposit slips.
 - e. Checks.

- | | |
|-----------------------|-----------------------------|
| f. Receipts. | 14. Time and Pay-roll clerk |
| g. Money orders. | a. Wage-rate records. |
| h. Figures. | b. Extend-time cards. |
| 13. Posting clerk: | c. Pay-roll sheets. |
| a. Customer's ledger. | d. Change memos. |
| b. Creditors' ledger. | e. Bank-slips. |
| c. General ledger. | f. Pay-roll checks. |
| d. Statements. | g. Pay envelopes. |

PART II

FUNDAMENTALS OF METHOD

I. Introduction. In order to achieve the twelve outcomes from the teaching of handwriting, the forms of procedure must be selected with a view to controlling the behavior of the pupils to such a degree that the necessary changes will be developed. The forms of procedure given below need not be followed in any particular order. Each teacher should study his class, and, upon recognizing its needs, plan his work to meet these needs in the best possible manner. However, since it is necessary at the beginning of instruction in handwriting to suggest to most classes some ways in which correct position and movement may be strengthened, these two essentials being elemental factors, are treated first. Each teacher should select the forms of experiences to be presented to the class in the order that he considers best for the results to be obtained.

A. Five essentials for success. Every pupil should realize that the time required to learn a good style of muscular movement writing depends upon:

1. His own desire and determination to succeed.
2. His degree of relaxation and coördination.
3. His willingness to follow directions absolutely.
4. His application of the principles of handwriting, acquired in the handwriting class, to all his daily written work.
5. His repeating the act of giving attention to the details of each letter until the habit of correct formation becomes automatic.

B. Good writing becomes an asset. Each pupil should realize that: "Fine handwriting can be fittingly held forth as a worth while ideal

because fine writing, like fine clothes and like fine manners, is becoming for all."

Many people are impressed by the kind of clothes that others wear. If one's clothes are of good material, well-fitted, and of good style, he makes a favorable impression. The same holds true in manners and in handwriting. Everyone likes to receive letters from a person who writes well. These letters are proudly exhibited to the friends of the recipients and their attention called to the handwriting contained therein.

The teacher should have specimens of writing by good penmen mounted on heavy paper as copies for the pupils. These copies may be obtained from penmanship magazines in which may be found each month specimens of handwriting rating high in quality.

C. Pupil experiences. The following experiences are imperative:

1. Correct body posture. Every pupil should realize that correct body posture means:

a. Both feet on the floor in natural position, as far apart as if standing.

b. The two elbows resting squarely on the desk near the corners; that is, with right angles at the elbow and elbows equally on or equally off the desk.

c. Eyes from 14 to 16 inches (depending on height of pupil) from the writing line.

d. Shoulders of even height, so that one will not grow higher than the other.

e. Head erect, not turned to left or right.

f. The muscular cushion of the forearm resting on the desk.

2. Use of good posture. Every pupil should realize that erect sitting posture, as part of correct physical bearing, is necessary for:

a. A military bearing, which is looked upon as the embodiment of courage, poise, dignity, confidence, self-reliance, self-respect, leadership, aggressiveness, and dependability. Pupils should be encouraged to study the sitting postures of business leaders, army and navy officers, etc., both from newspaper and magazine pictures and from personal observation.

3. Advantage of good posture. Every pupil should realize that an erect bearing means a firm, well-balanced, energetic tread, while a slouchy bearing is always accompanied by a shifting, shuffling, shambling gait.

Because the handwriting posture is assumed during the greater part

of the school day, it has a telling effect upon general posture. In order to acquire an erect bearing, one must acquire the habit of sitting well, standing properly, and walking correctly.

4. Results of bad posture. Every pupil should realize that a stooping, slumping, slouching, round-backed, narrow-chested posture suggests ill health, weakness, inadequacy, discouragement, and defeat.

These physical defects are the result of carelessness in the matter of sitting posture; they affect a person's later life, causing much unhappiness.

5. Posture contributions to health. Every pupil should realize the contributions of correct writing posture has to general health.

Modern life is sedentary.* One's sitting posture determines the form and development of the skeletal frame and the musculature of the trunk; upon these depend, far more than we realize, the vigor and functioning power of the vital organs. Habitual bad posture inevitably means the compression, displacement of, and interference with the functioning of the thoracic, the abdominal, and the pelvic organs. These ill effects are very gradual and subtle, and, because they are rather predisposing conditions than specific forms of disease, and often not brought to medical attention until other complicating factors have rendered them acute, they have not had the prominence in the literature of the medical world which they deserve. Posture is especially a female problem. Women, by their physical nature intended primarily for the function of maternity, are peculiarly sensitive to postural perils. Posture is the general result of educational, occupational, psychological, or mechanical influences. The effect shows in boys and girls who are either erect or round-backed, full-chested or hollow-chested, soldierly in bearing or ungainly.

6. Posture habit. Every pupil should realize that the assuming of good posture becomes a habit through daily repetition.

The teacher may dictate the following suggestions for practice in writing and to serve as guides to pupils in their endeavor to build up the habit of good posture:

“First, Launch yourself into the habit you aspire to gain with as strong and decided an initiative as possible.

“Second, Never suffer an exception until the new habit is securely rooted in your life.

“Third, Seize the first possible opportunity to act on every resolution you make and on every emotional prompting you may experience, in the direction of the habits you aspire to gain.

* Adapted from Bennett—School Posture and Seating.

“Fourth, Keep the faculty of effort alive in you by a little gratuitous exercise every day.”*

7. Posture check. A realization of what good posture means may be brought about in the following ways:

a. Recognition by the teacher of good positions through commendation and praise for the pupils who acquire the objective.

b. Frequent evaluation of each other's posture by pupils themselves and the establishment of the idea that mutual cooperation of pupils in this matter also helps.

(1) Most pupils are unconscious of their posture defects and need constant reminders to strengthen the right habit.

(2) A record may be kept by each pupil as to how often, on some particular day, he corrects his own posture himself, and how often he corrects it through the reminders he receives from his teachers and classmates.

8. Posture relation to handwriting. Every pupil should realize that the most efficient writer is the one who sits healthfully.

The best writing is usually done in the penmanship class where the teacher is constantly reminding pupils of correct position. A pupil's future success depends upon his ability to make himself do the proper thing in the immediate present; that is, exercise his control of himself now. An opportunity to determine definitely a pupil's ability to discipline himself presents itself in the appearance of his customary writing posture. The relation between posture and writing can be shown in terms of class achievement.

9. Effect of posture improvement. Every pupil should realize that improvement in posture has the following results:

a. General improvement of health.

b. General improvement of vigor.

c. General improvement of efficiency.

d. Better physical appearance.

Certain progressive industrial organizations have made careful studies of their employees' needs, and, by the introduction of facilities which aid in improving posture, have obtained a larger output due to the increased efficiency of the workers. There is a definite relationship between the manner in which one habitually sits at his desk and the attitude he displays toward his work. Energy and efficiency go hand in hand. An alert physical attitude denotes, and in a measure con-

* Bain—Habit Training.

tributes to, a correspondingly active mental condition. Capacity for sustained mental vigor is immediately dependent upon two things:

- (1) An abundant supply of oxygen.

- (2) The rapid elimination of toxins from the system.

That these two factors are conditioned by the kind of posture assumed is a well known fact.

10. Value of correct posture. Every pupil should realize the psychology of posture.

A director of physical training in a great university said that, in his opinion, erect posture is to be esteemed for its direct hygienic value. There is a feeling of self-respect and self-reliance incident to erect posture and carriage which goes far toward making one worthy of the respect and confidence of others. The belief that soldierly bearing develops soldierly qualities is basic in military training. One squares his shoulders and stiffens his spine when he exercises those moral traits to which these physical attitudes correspond, and mental habits of this type are almost inseparable from physical bearing. In so far as a good physical bearing becomes a habit, this judgment has proved reliable.

11. Causes and effects of head-turning.

- a. Causes. Each pupil should realize the causes of turning the head to one side when writing.

- (1) To get better light on the work.

- (2) To relieve astigmatic defects of vision.

- (3) To avoid the glare of uneven illumination on a glazed paper surface.

- (4) To see the point of the pen when obscured by the hand held improperly.

- (5) To see the paper better when the pelvis and shoulders are in different planes. These different planes are usually the result of:

- (a) Seeking a foot rest on desk irons.

- (b) Sprawling.

- (c) Being seated at the extreme right or left of the front of the room. This requires a prolonged turning of the head at the same angle in order to face the teacher, or the blackboard directly in front of the class.

- b. Effects. Every pupil should realize the ill effects produced

by the turning of the head to one side. Constant turning of the head becomes a habit that may result in:

(1) Eye-strain—which is more easily acquired than cured.

(2) Astigmatism of eyes—caused by straining the muscles of one eye.

The pupil should relax his body completely and let his head fall backward, then lift his head to a straight position and turn his eyes, but not his head, down to the paper. Occasionally, pupils should test their head posture by doing this.

12. Wrist posture. Each pupil should realize that the wrist should be raised from the paper just a little so that the freedom of movement, which must come from the muscles of the arm and shoulder, will not be obstructed.

Pupils who are writing with their wrists resting on their desks should be requested to stop and raise their wrists, rest their hands on the nails of the last two fingers, and glide back and forth across the page making a lateral movement drill. While this is being done, pupils should note the ease and freedom of movement with which the writing is done and the quality of line that is produced when the wrist is raised as compared with the lack of freedom of movement and the poor quality of line which always accompany the resting of the wrist on the desk. No special height is required for the elevated wrist, the most important feature being that the wrist should be free to move up and down across the paper. It is not necessary that the top of the wrist be perfectly flat; it should be held merely in a natural, comfortable position.

13. Hand posture. Each pupil should realize that the hand is in correct position when:

a. The third and fourth fingers glide or rest on the paper.

b. The wrist is clear of the desk and paper.

c. The top of the hand is either level or slightly tilted.

Since each hand is individual in structure, the distance of the wrist from the paper and the angle at which it is held during the writing process will be different for each individual. These features are governed by the length of the bones in the hand.

14. Posture of feet.

a. Health. Each pupil should realize that for the sake of good health it is necessary to form the habit of keeping the feet flat on the floor.

Crossing the knees, besides giving an inelegant and ungraceful appearance, may have two harmful effects:

(1) It may lead to paralysis by diverting the blood from the legs because of the undue pressure there.

(2) It may cause appendicitis by forcing the organs of the lower abdomen into an unnatural position.

It is a good citizen's duty to be healthy; therefore, a personal obligation rests upon every boy and girl to see to it that these physical defects, which may result from carelessness, are avoided.

b. Balance. Each pupil should realize that his feet should be placed flat on the floor in front of the seat or chair in which he is sitting.

In this position, the feet serve as a support to the body which relieves the arms of the weight that would otherwise have to be supported solely by them.

For a handwriting lesson, pupils occasionally should copy an English lesson, write a history paper, or do written work for any other subject. During the process, the teacher should remind them frequently of the proper placing of their feet, using the admonitions: Put your weight on your feet and keep your arms light. Feet flat, etc. Pupils should compare the papers written while sitting in a good position with those written previously, when the posture was poor, and note the improvement.

D. Relaxation.

1. Definition and initial development. An entire lack of restraint is the distinguishing feature of relaxation. As applied to handwriting, it concerns primarily the muscles of the arm and hand, but, in a general way, it includes the muscles of the entire body. A complete feeling of freedom from tenseness indicates the existence of a state of complete relaxation which should accompany the act of writing. The manner in which a swimming instructor endeavors to get his pupils to relax in the water before they attempt to learn the swimming strokes will prove valuable as a suggestion which may be imitated by the pupils who are learning to perfect their strokes in the handwriting class. A voluntary stiffening of the muscles of the hand and arm followed by an immediate loosening-up of the same may prove an effective device in leading pupils to recognize the difference between a relaxed and a tense condition of the muscles he must use in handwriting.

2. Necessity for relaxation. Pupils should realize that muscular relaxation is necessary for efficiency in the mechanics of writing and that it also enables the writer's mind to function well as he writes.

Writing must become automatic in order to leave a maximum amount of energy for the mental work in hand. William James, the psychologist, says, "It is your relaxed and easy worker who is in no

hurry and quite thoughtless most of the while of consequences who is your efficient worker: and tension and anxiety, present and future, all mixed up together in our mind at once, are the surest drags upon steady progress." Pupils should be shown some specimens of writing done with tense muscles, and some done with relaxed muscles. This will give them an opportunity to exercise their judgment and reasoning powers in regard to this matter.

3. Relaxation of arms. A pupil should realize that when he sits in a correct position his back does not need to be held rigid, but that while sitting straight he may relax and allow his arms to become almost limp.

The left arm in a relaxed writing posture should retain only strength enough to support the body lightly and to move the paper occasionally; and the right arm should retain only strength enough to keep it in position and to hold the pen. Pupils should be taught to keep their backs straight and their muscles relaxed by a constant reminder to sit erect and well back in their seats so that "the natural curves of the spine will be preserved and the body perfectly poised on the seat bones. . . . Not only is the weight carried by the bony support of the skeleton, thus relieving the muscles and nerves of all strain, but the poise is such that the minimum of adjustment is necessary for such movement as the work may require."* Pupils should copy some material from other lessons, such as English, bookkeeping, history, etc., for the special purpose of placing emphasis on arm and hand-relaxation. They should also be encouraged to try to write with a relaxed movement at all times until the relaxed posture becomes a habit.

4. Relation of relaxation to writing. Pupils should realize that muscular movement writing is possible only when the muscles of the writing arm are relaxed and limp and the tips of the third and fourth fingers are gliding easily on the paper.

Pupils should compare the feeling of ease that accompanies muscular movement writing with the feeling of tenseness that is peculiar to finger movement. The teacher should demonstrate and have pupils observe her, or have the pupils observe certain members of the class who use good movement, and note these three things:

- a. The ease of the writer.
- b. The appearance of the writer in action.
- c. The appearance of the writing.

The pupils should then try to assume a good posture and use an easy movement while they write some paragraph from a handwriting text or copy some other written work.

* Bennett, Henry Eastman, Ph.D.—School Posture and Seating.

It is a good plan to have the pupils know that they can use a certain penmanship period each week, or at least part of the period, to write some of their homework lessons. This gives the teacher an opportunity for individual instruction and impresses the pupil with the habit of using his best product at all times.

E. Penholding.

1. Correct penholding defined. Every pupil should realize what is meant by correct penholding. In aiding him to find out, the following instructions may be used to advantage by the teacher:

a. The penholder should be held loosely between the second finger and the thumb.

b. The first finger, slightly curved, should rest on top of the holder.

c. The end of the first finger resting on top of the penholder should be about one inch from the point of the pen.

d. The back of the penholder should rest against the second finger and the point of crossing should be just at the top of the nail on that finger.

e. The thumb should be bent slightly and its tip end should touch the holder opposite the first joint of the forefinger.

f. The penholder should rest against the hand either directly in front of or slightly below the knuckle joint of the forefinger. The point of contact will vary in different individuals according to the size and shape of each pupil's hand.

g. The penholder should point over the arm between the elbow and the shoulder; not over the shoulder.

2. Cause and effect of incorrect penholding. Every pupil should realize the reason for not holding the penholder too close to the point of the pen.

If the penholder is grasped too close to the point of the pen and the head is held in correct position, the writing cannot be seen. Therefore, the writer turns his hand to the right side in order to see the writing. This causes the moving muscles of the arm to work at the wrong angle and this results in a writing product which contains irregular, or mixed slant.

3. Correct angle of the pen. Every pupil should realize that the pen, to give good service, should be held in such a position that the two nibs will always rest evenly on the paper. If the pen is held in the proper position, the nibs will wear evenly; otherwise, one side wears first, and this causes the pen to scratch annoyingly and to cut

the paper. The point of the pen should be in direct line with the middle of the forefinger; and the eye, or hole in the pen should face the ceiling. Pupils should study the position of the nibs of the pen. When given new pens, they should be directed to rub them with the erasers on the ends of their lead pencils, or with pieces of chalk, in order to remove the oily coating on the pen. While copying sentences or paragraphs, they should check the angle of the pen, both at the beginning and end of each line. The nibs will be slightly worn after writing a half hour or more and it will then be difficult to use the pen at any other angle than that used at first. This shows that the initial position is most important for a future correct angle of the pen.

F. Paper.

1. Placement. Pupils should realize that the two controlling factors in paper placing are:

- a. The line of vision.
- b. The direction in which the pen must move across the page when writing.

The line of vision should be a line extending from top to bottom across the middle of the desk and coming directly toward the center of the body. The paper should be so placed in relation to the hand that the pen will move exactly along the blue line of the paper if the hand holding the pen is moved back and forth. The right-hand side of the paper should be parallel to the right forearm. The lower left-hand corner of the paper should point toward the center of the body.

2. Shifting. Pupils should realize that, since the best writing can be done directly in front of the center of the body, it is necessary to stop writing and move the paper to the left two or three times while executing one line of writing across the page.

The pupil should proceed as follows:

- a. Write words to cover one-third of the line, then lift the pen.
- b. Move the paper to the left a distance equal to the width of the space occupied by the words just written.
- c. Write another third of the line, move the paper, and complete the line.

When the line is completed, the pupil should compare the uniformity of size and slant in his specimen with that of a textbook copy. He also should compare his last line with a line nearer the beginning and note whether there is an improvement or a deterioration in the writing. When the pupil does not automatically move the paper far enough to the left, he should be directed to straighten

the index finger of his left hand and place it on the paper over the next blue line above the writing line. When the pupil has filled one-third of the line, that is, to the end of the finger on the line above, he should be directed to move the paper toward the left and his finger toward the right on the same line placing it over the second third of the line, being sure to keep his left elbow in position. When this much of the line of writing is finished, he should move the paper again, and far enough to the left to enable him to cover the last third of the line above with the finger he used before and complete the line he is writing. In this way, he will come to realize that the portion of the paper to be moved is one-third of the width of the paper, and that this distance should measure about two and two-thirds inches. The teacher must strive constantly to develop this habit of paper moving.

3. Duties of the left hand in writing. Each pupil should realize the function of the left hand in writing. It is the duty of the left hand:

a. To hold the paper firmly.

b. To shift the paper to the left when the pupil is writing across a line, and toward the right and the top of the desk when he reaches the end of each line.

When all but a few lines of the paper have been filled, the paper should be high up on the desk in such a position that the last lines of the paper will be in the same place on the desk as the first lines were when the writing was begun.

G. Practice habits.

1. Correct development. Each pupil should form the habit of profiting by the practice on each line in a textbook.

At the end of each line the pupil should apply the rule of the three C's: Compare, Criticize, Correct.

a. He should compare his own copy with the copy in the textbook.

The five S's.

(1) Size.

(2) Slant.

(3) Shape of letters.

(4) Smoothness of line.

(5) Spacing.

b. He should criticize his copy in terms of the five S's.

c. He should correct the defects noted when he writes the next line.

d. At the end of newly written lines, he should compare, criticize, rewrite, and correct again. He should continue the process until he is satisfied with the amount of improvement. If the principal or supervisor should come into the room during the handwriting lesson and find all the pupils following this procedure without directions from the teacher, it would be a sure indication that this habit has been established.

2. Type of practice necessary. Each pupil should realize that practice of the wrong kind leads to imperfection.

The writing we do every day, in every lesson, is practice; and the type of writing we produce every day determines our final product. The habits formed in school stay with us throughout our lives; therefore, it is very important for pupils to form the right handwriting habits. Since it is just as easy to write well as it is to scribble, and since no time is saved by scribbling, pupils may just as well get into the habit of writing neatly at all times.

3. Letter form study. Each pupil should realize the fact that observation and analysis are necessary in the study of a letter form. In this study the pupil should proceed as follows:

a. He should know this rule in handwriting: "The motion of the hand preceding the contact of the pen to the paper should be in the direction of the beginning stroke." This will lead him to study the direction of the movement necessary for the beginning stroke.

b. He should analyze each letter to determine:

(1) The type of beginning stroke.

(2) The height of letter or of its parts.

(3) The width of letter.

(4) The degree of slant.

• (5) The regularity of spacing.

(6) The type of finishing stroke.

c. He should study penlifting on final strokes.

d. He should practice writing letter forms to the proper count.

e. He should know the required number of letters per minute.

4. Word study. Each pupil should realize the proper way in which to study a word.

a. He should study the movement necessary to make the first

stroke of the beginning letter, whether it be a capital letter or a small letter.

- b. He should study the entire letter carefully.
- c. He should study other letters in the word.
- d. He should study connective strokes as related to movement and direction.
- e. He should notice the comparative heights of letters.
- f. He should recognize uniformity in slant or the lack of it.
- g. He should observe the spacing between letters.
- h. He should study the type of finishing strokes, giving special attention to the height of each.
- i. He should know the number of words to be written per minute.
- j. He should know the number to be written on a line.

5. Sentence study. Each pupil should realize how to study a sentence properly. The following plan will help:

- a. Study the initial capital letter.
- b. Notice difficult letter combinations.
- c. Give attention to connective strokes.
- d. Study the type of beginning and finishing strokes, particularly the height of the latter.
- e. Practice for uniformity of slant.
- f. Study spacing between letters and words.
- g. Notice the comparative height of letters.
- h. Keep a record of the number of sentences written to the minute.

II. Legibility.

A. Defined. When handwriting is so well executed that the turns, angles, and loops of the letters are correct in form, size, and slant, the retraces done with precision, the beginning and finishing strokes carefully made, the exact proportion of the parts of the letters one to the other maintained, and the spacing of the letters and words properly adjusted, we then have legible writing, or that which is easy to read.

B. Pupil inventory. Every pupil should realize that legibility is

of utmost importance, and that the first thing a pupil must do in handwriting practice is to learn to make all the letters legibly.

Pupils should make a study of their paragraph writing, pick out the most poorly-formed letters, and make a list of them. They should then analyze the letter form that calls for immediate correction, practice it, and afterwards aim to use the correct form in all their writing. It is best to begin with small letters, as they are used more frequently than the capital letters, and later study and aim to improve the latter. The small letters r, a, o, p, m, and n usually need most remedial attention.

C. Effect of size on legibility. Each pupil should realize that the size of writing may interfere with legibility.

If the writing is too large, the loop letters of one line will interlace with the letters of the line above or below. Writing of this sort is not easily read. A sample of writing of this kind should be shown to the pupils and its bad effect noted. Pupils who write too large should practice exercises to reduce the size of their handwriting. They should analyze their product to learn what parts of their letters need to be reduced. Some make merely the upper and lower loops too long. Their attention should be called to the fact that interlacing interferes with legibility. The following method of procedure would be a good one to use for the reduction of size:

1. The pupils write a line of a selected word using their own natural size.

2. On the next line, they try to reduce the size by aiming to get one additional word on the line. The relative height of minimum, intermediate, and loop letters should be checked.

3. If this does not reduce the size sufficiently, the pupils endeavor to write one word more on the third line than they did on the second line, again checking the relative heights. They should practice until they can maintain the proper size.

D. Adaption of size to space. Pupils should realize that the size of the handwriting must vary to conform to the size of the space on which it is to be done. When writing on a correspondence card, on a file card, in a small-sized notebook, etc., letter forms must be used that will be in proportion to the space to be filled. A few words on a large sheet of paper may be written large in order to give the proper balance between the amount of written material to be done and the remaining unused portion of the paper; for example, when addressing an 8" x 10" envelope, the writing should be adjusted to the space. On a small piece of paper, or a 3" x 5" card, the handwriting must be small so that the card may hold all that is intended to be written on it. The lines on a 3" x 5" card are usually drawn one-quarter or three-

sixteenths of an inch apart; this is a considerable reduction in the regulation size of the writing space—a width of three-eighths of an inch—and practice in readjusting the size of the handwriting becomes necessary when these cards are used. Pupils may practice their signatures by writing them consecutively in decreasing sizes, ranging from the accustomed size to the one that will fit in a space between lines three-sixteenths of an inch apart. They may practice, also, any selected words or phrases that they would be likely to use in any other subject—for example, in bookkeeping—using the size required for that particular line of work. Suitable poems may be copied on unruled paper and the size so adapted that it will be possible to place all, or certain selected portions, of the poem on the sheet, as desired.

E. Correction of size. If the writing is made too small, it will be extremely difficult to read and this will annoy the reader. By taking the following steps, pupils may be given practice in enlarging their writing:

1. Select one word for practice on the first line.
2. On the following line, try to write larger so that there will be one less word on that line.
3. Continue decreasing the number of words on a line in this way until the proper size is reached.

The pupil who has a tendency to make his handwriting too large or too small should use a pencil guide line, drawn at the height of the minimum letters, in making one line of writing, then try the next line without any guide. By using a guide line on every other line of the paper, the pupil will be able to note his progress toward correct size very easily.

F. Test of legibility. Pupils should realize that a letter form is considered illegible if it cannot be read when separated from the other letters in the word.

To test the legibility of any letter, have each pupil block off, by means of two small strips of paper, all the letters except the one to be tested. As the pupil examines the letter blocked off, he should ask himself the question: Is the letter really what it is supposed to be? Or, if the teacher prefers, an oblong cut as high as an upper loop letter and as wide as the small letter m, may be made in a small card; this card should be moved slowly along the line of writing and the opening placed over selected letters whose legibility may then be determined by the speed of reading. An excellent exercise is to have the pupils test the signatures of their classmates in a similar manner.

G. Relative heights of letters. Every pupil should realize the relative heights of the various types of letters.

The teacher should write the word *little*, or some similar word containing minimum, intermediate, and upper loop letters, on the blackboard. Demonstrate, by means of chalk lines drawn parallel to the base line, the heights of the various letters.

The various letters should be listed in groups, as follows:

Minimum—*a, c, e, i, m, n, o, r, s, u, v, w, x*, (*g, q, y*, and *z* are also the same height above the base line).

Intermediate—*t, d, p*.

Upper loop—*b, h, k, l, f*.

Lower loop—*j, g, q, y, z, f*.

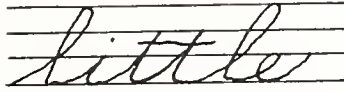


Fig. 3 —Relative Heights of Letters Tested by Means of Dotted Lines

H. Relation of heights of letters to legibility. Every pupil should realize that the relative heights of letters must be maintained to render writing legible.

In proper names, the letter forms *l* and *e* may become confused, as in *Hile*, *Hiel*, and *Hiller*. Pupils should write their own names and exchange the papers with their classmates for criticism. This should be done by testing the relative heights of the letters by means of dotted lines as shown in Figure 3; after this, the papers should be returned. Each pupil should then rewrite his name, giving special attention to any defects pointed out. If it is possible for a teacher to exchange the papers done by her class for those of another group, she may have her pupils rewrite the names of the other group as these names appear to them; it will make an interesting study and show whether the pupils of the other group can write their names well enough to be read with ease by another person who does not know them.

1. Capital letters. All pupils should realize that certain capital letters, because of their similarity in form to their corresponding small letters, may become confused if not made the proper size; for example, *A—a, C—c, O—o*, etc. The teacher should call the attention of pupils to these errors during the handwriting practice period; they should examine their own work and that of other pupils which was written in connection with content lessons, as well as the correspondence of adults, in order to find out if any such inaccuracies exist. Rewriting extracts from these with an endeavor to remedy the errors, if there be any, will prove a valuable exercise for the development of legibility.

2. Upper loop letters. All pupils should realize that upper loop letters contribute to the illegibility of handwriting when:

- a. They are not high enough.
- b. They have too much slant.
- c. They are irregular in slant.
- d. They have closed loops—the result of retracing.
- e. They are too long, extending beyond the writing space.
- f. They are too wide.

3. Lower loop letters. All pupils should realize that if the lower loops in the letters p, g, j, q, and f are made too long, they are out of proportion and may contribute to illegibility.

Pupils should be shown samples of handwriting with this particular error in evidence so that they may see how interlacing loops render handwriting difficult to read. The right length for lower loops is one-half of the writing space, and the proper width is slightly narrower than the upper loops.

4. Alignment. All pupils should realize that poor alignment is due largely to insufficient movement and lack of cōordination.

Each pupil should examine a line of his writing to learn whether all the words touch the base line. Next, he should examine the alignment of the letters. This may be done by drawing a pencil line at the heights set for the various groups of letters (Fig. 3) and noting the number of errors by counting the letters which do not touch this line. The pupil should examine, also, the tops and bottoms of letters in words written on unruled paper in order to test the alignment. In doing this, he will have an opportunity to test his judgment and his memory as well. He should practice sentences and paragraphs on unruled paper using the best possible movement and striving to keep all letters the regulation size. All such work should be examined and checked for alignment.

I Formation.

1. Analysis of letter forms by teacher. Every handwriting teacher should be able to write on the blackboard a perfect copy of any letter that she wishes to teach, and to analyze it before the class. As a model for the plan which the teacher should use in analyzing both the capital and small letters in the alphabet, the descriptions used in the Philadelphia Handwriting Course of Study are given below. These may be changed to suit the letter forms used by an individual school.

A. The first stroke of capital A swings down to the left and is

curved more than the upward stroke. The retrace is about half the height of the letter. The first and second strokes meet at the top in a sharp angle. The last curve is made by swinging a section of a true circle.

a. The small a begins with a curve down and to the left, slanting more than main slant. The final downward stroke follows main slant. The final stroke curves upward to the height of the letter.

B. The first curve of capital B swinging upward and beginning at half the height of the letter is a section of a true circle. The downward stroke is on main slant and is retraced almost to the top of the letter. The curve at the top is of the same height as the second stroke. The slant of the loop makes right angles with main slant. A tangent line drawn on main slant at the right of the letter should touch both ovals. The boat finish forming a sharp angle is above the base line at almost the height of a small letter, and finishes with an upward curve.

b. The small b is an upper loop letter. It is a combination of small l and the last part of small w.

C. The curve of the loop of capital C should begin slightly below the height of the letter. The loop follows main slant and is about as wide as a small o, and half the height of the letter C. The pen should be lifted with an upward curve when finishing the letter.

c. The small c has a dot or hook at the top. The downward stroke is somewhat like the downward stroke of the small o but slightly straighter. The final stroke curves upward to the height of the letter.

D. The first curve of capital D follows the first curve of capital O. The horizontal loop rests on the base line. The loop at the top is slightly larger than the loop at the bottom and finishes with an upward swing at the height of the letter.

d. The small d is a small a extended to twice the height of small a. As in the a, the first stroke is curved down, making an oblique angle with the stroke on main slant. A slight check at the top is necessary to make the d without a loop. In the final d a swift motion gives the narrow loop which swings downward in a circular curve.

E. The capital E begins with a dot. The round parts are sections of true circles, the bottom one being larger and finishing with an upward curve. The loop is at right angles to the main slant line. A tangent line drawn at the left of the letter on main slant touches only the lower of the two circles.

e. The small e begins with an under curve. The white of the paper

should show through the top of the e. The downward stroke follows main slant. e finishes at its own height.

F. The stem of capital F is a slanting line slightly curved at the top with the lower curve a part of a horizontal indirect oval. The boat finish ends with a check mark on main slant very close to the right side of the stem. The loop of the cap is on main slant and similar to small o. The cap finishes with a horizontal compound curve and should not touch the stem, but come very close to it. The distance between the loop and the stem should be the same as that between the cap and the stem.

f. The first curve of small f is a section of a two-space oval. The loops at the top and bottom are the same width. If the top and bottom loops are erased, the small i remains. The downward stroke is straight and follows main slant. The upward stroke of the lower loop joins the downward stroke at the base line.

G. The first stroke of capital G is the under curve of a two-spaced oval. The loop is half the height of the letter, the width of an l, and curves like the lower part of an oval, ending in a sharp point at half the height of the loop. The curve from the point downward parallels the beginning stroke. The boat finish parallels the base curve. It finishes with a pen lift.

g. The small g is a lower loop letter and is based on a combination of the straight line and the oval movement. The first part is like a small a, and the top should be closed. The downward stroke follows main slant and is straight. The finishing stroke is an over curve crossing on the base line.

H. The initial stroke of capital H comprises a small loop and a broad turn which becomes straight as it approaches the base line. The second part is curved slightly at the top and becomes a straight line parallel to the initial stroke as it nears the base. The joining loop touches the first stroke and ends with a right curve.

h. The small h is a combination of small l and the last part of small m or n. The loop crosses at the height of a small i. The last part is made with an over motion. If h is turned upside down, it forms a small y.

I. The first stroke of capital I is like the upward curve of an indirect oval, beginning on the base line or slightly below. The downward stroke follows a main slant line and is as nearly straight as possible. The curve on the base line should be a broad turn. The boat finish ends with a right curve and a pen lift.

i. The first stroke of the small i is made with an under curve and the downward stroke follows main slant. The last stroke curves up-

ward to the height of the letter. The dot is placed above at twice the height of the letter, measuring from the base line, and in line with the slant of the i.

J. The capital J begins like capital I, but is wider at the top than I. The back of J is straight and on main slant, though it may slant a trifle more. All lines cross at the base line. The lower loop is half a space long and narrower than the upper loop. It finishes with an over curve.

j. The small j is a lower loop joined to a small i. The loop crosses with an over curve at the base line. The dot is the same as that of the i.

K. The capital K begins like H. The second part of K begins with a compound curve which meets the initial stroke at the middle of the letter in a loop at a right angle to the first down stroke. The compound curve under the loop is vertical and ends with a pen lift.

k. The loop of small k is like the loop of l, but stops at the base line with a slight check in the motion where it is joined to a curved over motion stroke ending in a small oval or loop. The second downward stroke parallels the slant of the first downward stroke and hence is on main slant.

L. The first curve of capital L is a quarter of a true circle and begins at half the height of the letter. The length of the top loop is half the height of the letter. The stem of the letter is a compound curve on main slant. The long flat loop rests on the base line and finishes with a horizontal compound curve to the right under the base line like Q.

l. The small l has a curved upward stroke like the curve in the two space oval. The loop crosses at the height of an i. The downward stroke follows main slant and is as straight as can be made without stopping the movement. The final stroke extends to the height of a small i.

M. The initial stroke of capital M is a small loop with a broad turn which becomes a straight line as it approaches the base line. The three straight strokes are on main slant and are retraced to half the height of the letter. The first turn at the top should be higher and wider than the second, the second should be higher than and of the same width as the third. The last curve is a section of a true circle.

m. The small m is a repetition of the over motion. The downward strokes follow main slant. The width of m is approximately twice its height. The last stroke ends at the height of the letter.

N. The initial stroke of capital N is a small loop with a broad turn which straightens as it approaches the base line. All downward strokes are on main slant. The retrace is about half the height of the letter. The last curve turns slightly to the right and is a section of a true circle.

n. The small n begins with an over motion. Both downward strokes follow main slant. The last stroke ends at the height of the letter.

O. The capital O is composed of a slanting oval, two-thirds as wide as high, which finishes at its own height with an upward curve. Both sides curve equally and the top is as round as the bottom. The loop begins at the middle of the top.

o. The small o is a reduced form of the capital O. The final loop of capital O becomes a dot in small o. A slight check in the motion is necessary to close it and helps in swinging the last stroke which is a horizontal curve.

P. The capital P begins with a curved upward stroke which is part of a true circle and starts at half the height of the letter. The downward stroke is on main slant and is retraced nearly to the top of the letter. A slight check in motion at the base line aids in the precision of the retrace. The round part is a reverse oval half a space high, and finishes with a left curve.

p. The initial stroke of small p is made with an under curve like the two-space oval, and is twice the height of the minimum letters. A slight check is necessary at the top to avoid a loop. The oval part on the base line should be a small a if turned upside down, and fastens to the stem at the base line. The bottom loop is slightly narrower than the lower loop of small g.

Q. The capital Q begins with a small loop and a broad turn at the top developing into a right curve. A long narrow loop lies flat on the base line and extends farther to the left than the top loop. The letter ends with a horizontal compound curve finishing below the base line, like the capital L.

q. The small q begins like small a, the downward stroke follows main slant and is half a space long. The bottom loop of q closes at the base line and the last stroke is made with an under motion ending at the height of the letter.

R. The capital R begins like capital B and capital P and ends like capital K. The small loop should be made at about half the height of the letter and should tie around the retraced downward stroke. The oval is similar to the oval in capital P. The last downward stroke is a vertical compound curve and finishes with a pen lift to the right.

r. The small r is a trifle higher than the other minimum letters except s. It has a small angular shoulder in the upper part. The two angles and the slant of the shoulder must be distinct.

S. The first curve of capital S is like the under curve of a two-spaced oval. The downward stroke is a compound curve like the stem stroke in capitals L, T, and F. The loop is half the height of the letter and as wide as the small l. The curve at the bottom is a part of a reverse horizontal oval. As in capital G, the boat finish parallels the base curve and ends with an upward pen lift to the right.

s. The small s begins with an under curve and is a trifle higher than i. The second curve turns back but not up. The motion should be checked to avoid loops at the angles. The finishing stroke curves upward to the height of the letter.

T. The stem of capital T, which is the first part to be written, is a slanting line slightly curved at the top and the lower curve is a part of a horizontal indirect oval, which ends in a boat finish. The loop of the cap is on main slant and similar to the small o. The cap finishes with a horizontal compound curve and should not touch the stem, but come very close to it. The distance between the loop and the stem should be the same as that between the cap and the stem. In joining capital T to small letters the boat finish crosses the stem.

t. The small t is a small i extended its own height. The crossing of the small t is twice as long on the right side as on the left. When a word ends with a final t, preceded by another t, the final t finish is not used, and both t's are crossed with a single stroke. The last stroke of final t is a slight retrace which curves outward finishing at about the center of the letter.

U. The capital U begins like capital V and Y with a loop and a compound curve for the initial stroke. The second part is nearly the height of the first, retraced half the height of the letter, and finishes like capital A.

u. The small u begins like small i but the width is less than the width between two "i's". Both downward strokes follow main slant. The final stroke ends at the height of the letter.

V. The capital V begins like capitals U and Y with a loop and a compound curve for the initial stroke. The turn at the base line is narrower than that of the capital U. The last part is a compound curve finishing gracefully towards the right and slightly lower than the first part of the letter.

v. The small v begins like n and has a combination of over and under motion finishing with a dot and a horizontal curve.

W. The capital W begins with a reverse motion like the capital M followed by a slight right curve the height of the letter, a straight line on main slant to the base line, and finishes with a left curve about two-thirds the height of the letter. The width between the first and second strokes of the letter equals the width between the third and fourth strokes. The two sharp angles on the base line and the one at the top are slightly retraced.

w. The small w is composed of small u and the last part of small v finishing with a dot and a horizontal curve.

X. The capital X begins like capital W with a loop, a wide turn, and a downward stroke. The second stroke is the reverse of the first stroke and resembles the figure 6. The two strokes meet at the center so that the union of the two will form a straight line on main slant. This line may be slightly curved at the top and bottom.

x. The small x is like the last part of n. The cross line extends from half the bottom width to half the top width and crosses at half the height of the letter. The cross line may be made either with an upward or downward stroke.

Y. The capital Y begins like capitals U and V with a loop, a wide turn and a compound curve. The turn at the base is as wide as that of capital U. The downward strokes follow main slant, and the second part is slightly lower than the first. The lower loop curves on the left side only, extends half a space below the base line, crosses with an over curve on the base line and ends at the height of the minimum letters.

y. The small y begins with an upper turn like the small v and finishes like small j. If the y is turned upside down, it forms a small h.

Z. The capital Z begins like capital Q with a small loop and a broad turn at the top. The small loop in the middle rests on the base line and slants somewhat. The lower loop is half a space long and is curved on both sides like the loop in small z. It crosses with an over curve on the base line and ends at the height of the minimum letters.

z. The small z begins like n. The turn preceding the downward loop is very low and narrow. The lower loop curves slightly on both sides and finishes with an over curve crossing on the base line.

1. The figure 1 is a downward stroke on main slant made with a light motion.

2. The figure 2 begins with a dot below the height of the figure, turns to the right, curves downward to a point, and finishes with a line slanting slightly upward.

3. The figure 3 begins with a dot below the height of the figure, consists of two right curves, the top one being smaller than the bottom with a tiny loop between. The end of the last curve should swing above the base line. The pen is lifted while the arm is in motion. If a main slant line is drawn at the back of the figure, it should touch both curves.

4. Both downward strokes of 4 are on main slant and hence parallel. The last stroke is slightly higher than the first. The horizontal stroke is above the base line at about one-fourth the height of the figure. The last downward stroke rests on the base line. The width of 4 is the same as that of 0.

5. The figure 5 begins with a downward stroke on main slant at about half the height of the figure, then it curves upward and around finishing with an upward swing like the 3. The final stroke is parallel to the base line and is attached to the initial stroke. A main slant line if drawn at the back of the figure should touch the end of the final stroke and the back of the curve.

6. The figure 6 begins with a line on main slant, develops into a curve at the bottom similar to that of the 0, and ends with a little loop at the right of the bottom curve.

7. The figure 7 begins with a dot and a straight line. The downward stroke is on main slant and drops slightly below the base line.

8. The figure 8 begins a little below the height of the figure with a rounding curve to the left, then curves to the right and finishes with an overstroke which crosses about the middle and extends to the height of the figure. The top part of the 8 is wider than the bottom part.

9. The figure 9 begins like the letter a, but is smaller and rests above the base line, the last stroke follows main slant, is as high as the figure 1, and drops slightly below the base line.

0. The figure 0 is simply a reduced oval and is made with the same rounded motion. A line on main slant would cut it in half.

2. Causes of poor letter formation. Each pupil should realize that the three main causes for poor letter formation are:

a. Inadequate knowledge of the correct letter forms.

b. Using a rate of speed that is too great for the amount of control required in letter formation.

c. Trying to secure a speed not warranted by the habits of pen position, posture, and movement already acquired by the pupil.

3. Causes of angularity. Each pupil should realize that angular letters are caused by a stop of the pen at the places where the motion of the hand should not be retarded.

Angularity is caused by making the turns in letters pointed when they should be rounded. When this defect is found in a pupil's writing, he should be given practice on single unit strokes and instructed to use more rolling motion. It may be necessary to have him use units of a larger size, like the letter in one space high, or an upper loop letter two spaces high. The larger unit, retraced eight or ten times, should be followed by the letter made the regular size. Easy words, sentences, and finally, paragraphs, may then be practiced. Rolling motion and gliding fingers should be stressed in all three instances.

4. Closings. Each pupil must realize that the closings of certain letters are important if the writing is to be legible.

Each pupil should examine his writing to see if he has closed the following letters carefully: a, d, f, g, o, p, q, s, y (lower loop.) A list made by each pupil of the letters not properly closed, should be studied in order to learn the cause of their being left open. He may discover that:

a. The initial curve of the a may be too short, or not curved enough;

b. The initial curve of the o may be too straight;

c. The curve in the lower loop of the f may extend too far above or remain too far below the base line;

d. The lines which form the lower loop of the y may fail to cross.

5. Similarities in small letter forms. Each pupil should realize that some letters are made with similar movements.

Letters are based on the following elements:

a. Understrokes, as found in e, i, u, and w.

b. Overstrokes and understrokes, as found in n, m, v, x, and in the retraced r.

c. Mixed strokes, as found in o, a, e, r, and s.

d. Upper loops, as found in l, b, h, k, and f.

e. Semi-extended retraces, as found in t, d, and p. These are called the intermediates.

f. Lower loops, as found in j, g, q, y, and z.

g. Lower loop underfolds, as found in q and f.

When a pupil can make one letter in a group well, he has acquired a power that will aid him in making the others of the group correctly.

6. Corrective measures.

a. Word spacing. Enough space should be left between a word and the word that precedes or follows it to make it easy for the eye to locate the beginning and the end of each word. The general rule for the spacing of words is conceded to be the following: Make the finishing stroke of the final letter of each word at the height of the small letter i. Begin the following word directly under the end of the last stroke of the preceding word. When words begin or end with a downward stroke, the writer must estimate the distance between the words himself. He should aim to have the spaces just wide enough for easy reading and should remember that very wide spaces are conducive to slow reading. The pupil should measure the spacing in his writing product with that of a copy in some handwriting textbook in order that he may find how nearly his word spacing agrees with that of the standard copy. Sufficient drill on this phase of handwriting should be given to pupils to make sure that the habit of spacing words correctly has been established.

b. Letter spacing. This refers to the spaces between letters in a word. Each letter should have a border of white space around it wide enough to cause it to stand out distinctly from every other letter. The spaces between the letters in words should be of equal length, no part of any letter touching another letter, except in joinings; for example, the cross stroke of the t in a word containing the letter combination th should not cross the h as well; in the combination ci, the two letters should not be close enough to resemble a poorly formed a; the combination cl should not be made to resemble a poorly formed d; the second part of the combination vi should not resemble a running r; in the combination wr, the space between the two letters should be wide enough to avoid a possible confusion with the combination ur; etc.

c. Line crowding. This appears at the end of a line where the writer tries to fit a word into a space that is too small for it. Pupils can check this tendency toward bad spacing as they approach the right-hand margin of the writing sheet by making it a habit to study the division of words into syllables and by endeavoring to measure with the eye the distance remaining on an unfilled line thereby becoming able to estimate the number of words it will take to fill the line without crowding. Accuracy may be developed by constant effort and concentration on this point.

d. Letter formation.

(1) The small letter a. Some pupils make small a's that look like small o's. This is because the initial downward curve is not made round enough and does not extend far enough to the left;

also, because the second downward stroke is not slanted enough and is not brought down close enough to the base line of writing. Small a is often read as small u, because the first downward stroke is not long enough to close the letter by joining with the upward stroke that follows. The descriptive count, curve-close, down-up, may be used effectively to insure a closing of the letter at the top. The comma indicates a pause that marks a check in the voice that will allow plenty of time for the closing. The small a is often confused with the combination ci, because the beginning stroke of a is made too short to admit of a closing at the top.

(2) The small letter b. Unless the last part of small b is finished like the last part of small w with a retrace and a curve, the letter may be confused with the small letter l or the combination li. If the lower turn of the b is made too close to the loop or fuses with it, the letter may be mistaken for the small letter h. If the upper loop is made too short and the lower turn becomes narrowed and extends below the writing line, the letter resembles f.

(3) The small letter c. A small c made so hurriedly that the second stroke does not retrace the first stroke, could be interpreted as a small e. Or, if the part that should be curved is made straight instead, the letter takes on the semblance of a small i. This error is often made by pupils who write very small. Increasing the size of the writing and stressing the curve during practice on this letter form will help to overcome the defect.

The combinations ci, cu, and cw, unless carefully made, with enough curve in the c and a wide enough space between the c and the following letter, may become confused with a, ai, etc.

(4) The small letter d. Unless the small letter d, made with a loop, is properly closed, the letter may resemble the combination cl, particularly if the loop in the semi-extended part of the letter is made too wide and as tall as the full-height loop letters. If the semi-extended part of the d, made with a retrace, is not made high enough, it may perhaps be confused with the small letter a, or if the first part of small d is made too short and with the curve at the base too wide, the effect produced will resemble the small letter u.

(5) The small letter e. This letter should have enough under curve at the beginning to permit the white of the paper to show between the upward stroke and the downward stroke which form the small loop. If the first stroke is not curved enough, there will be no open loop and the result will be an undotted small letter i rather than a small letter e. The height of e should be carefully maintained; it must not be so short that the loop will be eliminated nor so high that it will become confused with the small letter l.

(6) The small letter f. The most common fault in the making of this letter is that the lower loop is often shortened to such an extent that at a quick glance the reader may mistake the letter for the small letter b. Another fault is that of making the upper loop short and closed so that it becomes a point and not a loop at all, the result being a letter that looks like the small letter j without the dot. If the lower loop is made longer than the upper loop, it is likely to interlace with the writing on the line beneath.

(7) The small letter g. The first part of this letter is similar to the small letter a, and unless this part is closed at the top and the first stroke a decided curve, as in the letter a, the letter may be mistaken for the small letter y. If the first part is left open at the top and is begun with a little hook, it will look like the combination ej minus the dot over the j. Pupils should be given practice on the three small letters a, d, and g in order to establish the correct beginning of these letters, the formation of which is common to all three and often found to be defective in each case.

(8) The small letter h. The most common defect in the making of the small letter h, and one which affects its legibility, is that the upper turn of the unit which follows the loop unit is made pointed instead of round. Pupils can secure this roundness in the turns of the small letter m, small n, and the last part of the small letter h, if they practice with the idea of making a distinct over motion each time. They must realize that making a point at the top does not save time, but merely indicates the use of a wrong motion in producing the turn. For practice, pupils may select any paragraph to copy and give special attention to all letters having upper turns in them. At the end of each line they should stop to compare, criticize, and prepare for correction in the line that will follow.

(9) The small letter i. The correct formation of this letter requires that it be finished with a dot. Unless this dot is made in line with the downward stroke and at the height of the small letters t, d, or p, the letter remains unfinished; and the writing of it must be considered as carelessly done if the dot is persistently omitted. The teacher may illustrate both the height and position of the dot over the small letter i by making the small letter t correctly, but with the cross stroke omitted and then erasing all of the retraced part except the extreme tip. The result will be a small letter i. To enable the pupil to remember this dot in writing words, the teacher may name the letters, and say—Dot—when it is time to dot the i. For example, when pupils are writing the word pin, the teacher's count should be p—i—n—dot. When the pupil has written a sentence or a paragraph, he should stop and check the undotted i's.

(10) The small letter j. The correct formation of this letter, like the small i, requires that it be finished with a dot. The tendency is to make the beginning stroke as high as the t, d, or p, when it should be the size of small i. A loop at the top causes many illegibilities.

(11) The small letter k. The most difficult part of this letter to make correctly is the small hook in the middle of the letter. It must be made small enough, with the hook distinct, and brought close to the loop at the beginning of the letter; otherwise, it may be taken for a small letter h. The last part of the k is the height of a minimum letter. Only concentration and constant drill will make it possible for the pupil to perfect this difficult unit and to acquire the skill in making a good letter form.

(12) The small letter l. The chief error in this letter is that it is often carelessly made, and, as a result, the reader has difficulty in distinguishing it from the small letter e or the small letter t. Two defects arise from careless formation: first, the loop is not kept at its proper height, which is three times the height of the minimum letters; and second, the loop is not kept open. When the lines which form the loop are allowed to approach each other too closely, the letter assumes the appearance of a poorly retraced small letter t.

(13) The small letter m. Unless made with the three upper turns well-rounded, this letter may not be distinguishable from the small letter w, or the combinations ni, ui, and iu lacking the dots. When this defect in a pupil's writing becomes noticeably apparent, he should be encouraged to watch his daily writing in order to regularly check and overcome this tendency toward angularity.

(14) The small letter n. The upper turns of the n should be rounded. If the n is made angular at the top, it may be mistaken for ir, ri, iv, or u. Drill on over turns to secure more rounded writing will help the pupil.

(15) The small letter o. If the o is not closed at the top, it may be read as the letter v. It becomes an a or ei if the swing stroke is retraced almost to the line. Beginning the o with an under stroke and looping the top makes it into an e. In practicing this letter, stopping at the top to close the o will eliminate many of these mistakes.

(16) The small letter p. The beginning stroke should be as high as the t and d, whereas the tendency is to make it the height of the small i. The oval of the p must be closed at the base line. This can be secured by a slight pause before the ending stroke is made.

(17) The small letter q. The q is a combination of the small letters a and f. If the q is open at the top, it may easily be mistaken for cf. Closing the top, but extending the upward stroke above the size of the small letters, makes q look like of. To remedy these inaccuracies, there should be a pause at the top to close the q.

(18) The small letter r. If the shoulder in this letter is not accentuated so that it stands out as a distinct feature, the letter may be read as a small letter i without the dot or a small letter v without the finishing stroke. When the retrace, or business, r is used and the lines which should form the retrace are left open at the top, the letter becomes similar in appearance to the small letter v made with a point at the bottom. Careful formation of both types of the small letter r in the daily practice lesson and a duplication of this carefulness in the handwriting work in other lessons is the remedy for these defects.

(19) The small letter s. A small letter s made without a point at the top and with the second, or back stroke not fastened to the first under stroke may be mistaken for an undotted, angular small letter i, a poorly made small letter r, or an angular small letter v without the final stroke. With so many possibilities of interpretation, the status of the letter becomes very uncertain. A pause at the top before the slight retrace is made may be suggested to the pupils. The letter can be made best with a rocking motion which will give the freedom required to swing the second stroke back to where it should join the initial upward stroke.

(20) The small letter t. Carelessness or haste is responsible for the defective formation of this letter. If made indifferently or too rapidly, the lines which should form the retrace will stand apart; and, if the crossing stroke is omitted or placed so far away that it does not touch the main part of the letter, the result will be a formation that looks like a poorly made small letter r or an undotted small letter i. A little more time is needed for the execution of this letter because of the difficulty encountered in the retracing and the crossing. The teacher's descriptive count of under-retrace-under-cross will likewise prove effective as a remedial measure in this case.

(21) The small letter u. The small u is often made like, and mistaken for, ie, ei, ee. This is caused by looping the two downward strokes. If the small u begins with an over stroke, instead of an under stroke, and the second downward stroke does not touch the line, it may readily be mistaken for small v. There are two points to remember in overcoming these errors: first, retrace the downward strokes; second, bring the downward strokes to the line.

(22) The small letter v. The small v is a combination of the last part of small m and the last part of small w. If a retrace is made on the downward stroke, a running r is made. To correct this inaccuracy, the v must be made with round, over, and under strokes.

(23) The small letter w. This letter should have a plain swing stroke if it is to look like a w and not a u. To get this, the pupil must stop to get a point and swing. Making the swing retraced too far also causes it to be mistaken for u.

(24) The small letter x. The crossing of the small x causes the most trouble. It should be crossed on the side, through the downward stroke. Individual instruction and corrective exercises must be given. Making the stroke too long is another common fault. By beginning the stroke on the line and crossing it upward, a guide will be given to the pupil—where to begin and where to stop. When the x is too narrow, it looks like a running r.

(25) The small letter y. The y, being a combination of the last stroke of n and the lower loop of the g, begins with an over stroke. The tendency is to begin with an under stroke, thus making it read ij, with the dots omitted. To overcome this inaccuracy, the pupils should practice enlarged overturn drills, and apply a similar motion to the first part of the letter.

(26) The small letter z. The chief fault of the letter z is making the second part too high, so that the letter resembles y or ij. Sometimes the pupils make the second hump of the z too wide. Practice should be given to pupils whose names contain a z.

J. Spacing.

1. Irregular. Every pupil should realize fully that irregular spacing of letters and words is one of the contributing causes to the illegibility of the handwriting product.

Pupils whose letters are always spaced irregularly should practice gliding on their nails when writing and give watchful attention to the formation of the separate units of the letters. Wide spacing to be used for exercises in gliding can be secured by turning the paper until the blue writing lines are parallel to the right forearm. A letter may be placed in each of the spaces between the vertical blue lines and these spaces thus utilized as a device for keeping the distances between the letters of even length. This is commonly known as cross-hatching. Pupils should compare their copies in which the spacing has been corrected with their earlier copies containing poorly spaced writing and note both the better appearance and the rapidity with which the handwriting may be read.

2. Insufficient. Every pupil should realize fully that the crowding together of letters makes the writing difficult to read.

The pupil should examine his writing to learn if there is a border of the white paper around each letter. Each letter should stand out by itself and should not be so close to any other letter that its interpretation becomes difficult. Just as every picture has a frame, just so each letter should have a frame of white space around it.

3. Spacing strokes. Every pupil should realize that the spacing strokes—the first and last strokes of a word—lead the eye easily from one word to the next and that this produces ease in the reading of handwriting. The final upward stroke should:

- a. Be the height of the small letter i.
- b. Not turn back too far to the left.
- c. Not to be omitted except after the final letters d and t, and occasionally—in very excellent and finished writing—after the small letter s.

The beginning stroke should:

- a. Have the proper slant.
- b. Be the proper length.
- c. Swing upward in the letters b, e, f, h, i, j, k, l, m, n, p, r, s, t, u, v, w, x, y, and z.

K. Slant.

1. Mixed. The pupils should realize that all the downward strokes in one person's writing should slant in the same direction, although everyone need not write with the same degree of slant.

Mixed slant in a page of writing detracts from the neatness of the paper, makes the writing difficult to read, and displeases the aesthetic sense of the reader. Here correlation may be made with the principles of the art course. The teacher should display specimens showing good slant, poor slant, etc., and have pupils vote on the type they like best. Pupils should recopy a page of any of their written work giving special attention to the producing of uniformity in slant. This is secured by holding the hand and paper in the proper position and by pulling all downward strokes toward the center of the body. In this way, they can see to their own satisfaction whether they have improved the slant in the original copy by having exercised especial care in the execution and having worked for slant under right conditions.

2. Uniform. The pupil should realize that when the pen, paper, and hand are held in correct position and the lines are drawn regularly toward the center of the body, a uniform slant results. Mixed slant

usually results from a too frequent changing of the pronation of the wrist as it moves across the page.

3. **Extreme.** The pupil should realize that writing which might otherwise be rated as good is sometimes difficult to read because of its extreme slant.

Specimens of writing which show extreme slant should be examined for legibility and tested for the effect upon the eyes of the reader. The pupil should learn that the cause of extreme slant may be due to:

- a. Wrong position of the paper.
- b. Wrong direction of the movement, that is, from right to left and vice versa, rather than toward the center of the body.

The pupil should keep his nails gliding up and down across the paper as he writes in order to secure the regularity of direction and ease of movement needed to produce uniform slant. Hand position and paper moving must be checked constantly by both teacher and pupil in order to insure the proper degree of slant. All pupils will agree that extreme slant renders handwriting difficult to read and that this has an irritating effect upon the reader.

L. Speed.

1. **Relation to legibility.** All pupils should realize that the ability to write legibly at a fair rate of speed, at least 100 letters per minute, is demanded in the business world today.

The pupil should write from the teacher's dictation. At first a short period of two minutes may be used. This permits the pupil to check his own speed and quality and to get the feeling of writing from 100 to 120 letters per minute. Then longer periods of ten or fifteen minutes may be used. Pupils should be encouraged to time themselves when writing at home or in a study period in order that they may regulate their own speed.

2. **Rhythm.** All pupils should realize that "rhythm is the organization of movement in respect to its timing."*

The movement used in writing a word is divided into units, but these units are not of equal length. At the beginning of instruction in muscular movement writing, letters are taught in groups; this provides a definite and uniform rhythm. In words, the rhythm is not uniform, but the writer should observe the units. According to Freeman, a unit extends from one stop to the next, and ordinarily, but not always, corresponds to a double stroke—an upward and a downward, as in the first unit of the small letter m, or a downward and an upward, like the last unit of the small letter i. In the former

* Freeman, Frank N.—"The Teaching of Handwriting."

letter, the first unit is usually designated as over-down, and the latter as down-under. It will be noted that the last unit of the small letter n consists of a stroke made in three directions. This is given a count of over-down-under. Pupils should write to the teacher's count and wait at the end of each unit until the count for the next unit is given. The illustrations (Fig. 4) will serve to show the number of units and the location of the stops in the words: are, in, and men.

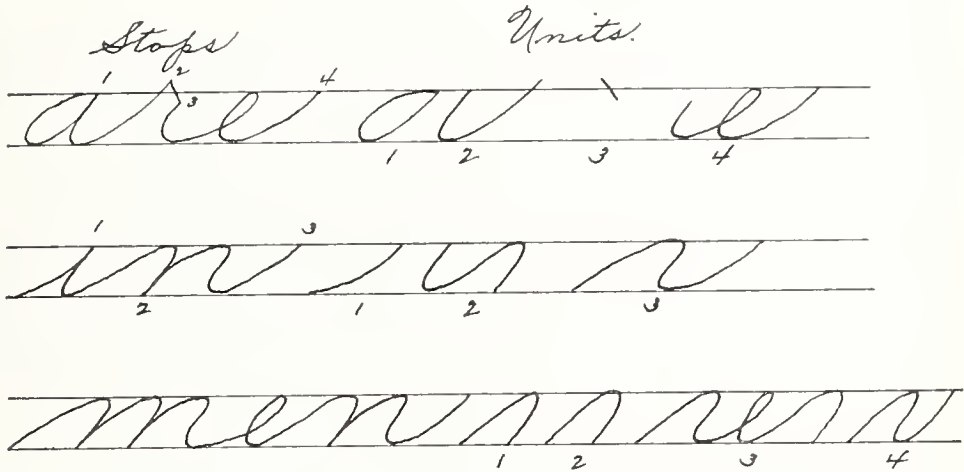


Fig. 4—Illustration Showing the Number of Units and the Location of Stops in Words

Long words may be divided into units and practiced to counts. Pupils who write with pronounced angularity, or who are weak in the coordination of form with movement, will need to spend considerable time on the development of unit-stroke recognition and practice. Working on the blackboard will prove useful as an aid in this development.

3. Slow writing a handicap. All pupils should realize that slow writing may be the result of slow thinking and that one of the objects of handwriting practice is to speed up the individual's thinking process while his hand is engaged in writing.

Fast readers get more and understand better. Fast writers do better work in handwriting after acquiring control in movement and form, and remember better what they have to write. Pupils should write from dictation. After a few minutes spent on the exercise of writing every word, the teacher should illustrate on the board how notes may be taken by writing the important words and leaving spaces between them for omitted words which may be filled-in during another study period. The filling-in process will afford a means for the reviewing of notes and will help the pupil to remember the dictated material.

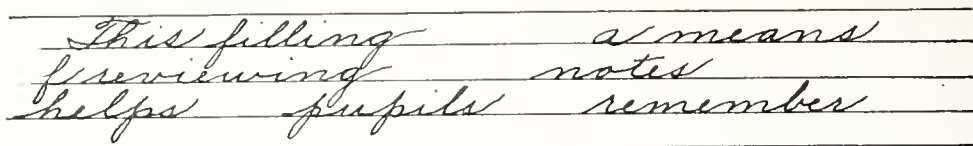


Fig. 5—Illustration Showing How Notes May be Taken by Writing Important Words and Leaving Spaces Between Them for Omitted Words Which May be Filled in Later

4. Note-taking. Each pupil should have the ability to write legibly and rapidly enough to enable him to take down notes given by an instructor.

The teacher should dictate a paragraph at the rate of 100 letters a minute. When the paragraph has been written, the teacher should stop to allow the pupils to check the amount of the paragraph they have succeeded in writing and to determine their speed per minute in copying. A check on legibility should then be made and the copy filed for future reference. In a week or so, the test should be repeated and checked; this should be continued until the standard is reached.

M. Figures.

1. Relation to legibility. Each pupil should realize that each figure must depend upon itself for legibility.

Letters in a word may be interpreted by the context of the paragraph or sentence, but such is not the case with figures. Each pupil should scrutinize his own figures for size, slant, shape, and spacing. Occasionally, a mathematics paper should be prepared or some work from the arithmetic class rewritten in the handwriting period in order that the pupil may improve the arrangement of his mathematics material and the formation of his figures. Practice on the mathematical symbols: #, ¢, c/o, %, a/c, $\frac{1}{2}$, $\frac{1}{3}$, etc., should be provided for commercial students.

N. Quality of line. Pupils should realize that rough, heavy, or shaky lines are an indication of slow writing, and that they may be the result of poor hand position or too much pressure on the pen.

Pupils who write with heavy or with tremulous lines should test their own hand positions and method of penholding. They should note particularly whether or not they are writing on both nibs of the pen. They should try to improve the quality of their writing by gliding more freely on their nails and using more speed. Pupils should compare the quality of the line produced by a hand and pen held and moving properly, with a previously-written specimen that was produced by a hand and pen held in the wrong position and moving improperly.

O. Good arrangement. Every pupil should develop the habit of good arrangement through systematic carefulness in the spacing of words, keeping margins, etc.; through striving for accuracy and uniformity in the formation of letters; and by constantly demanding of themselves neatness in all their written work.

The pupil should continually study his theme papers, mathematics papers, etc., to see: (1) whether the lines of writing are correctly spaced in order to avoid the undesirable feature of having the extensions of the letters on one line interlace with the extensions of those on another; (2) whether the finishing strokes of the letters are so long that they run into other letter strokes or are omitted altogether, thus making the final letters appear unfinished. In writing a paper in English, mathematics, etc., the pupil should endeavor to improve his beginning and finishing strokes. Correct spacing of words at the end of a line, correct separation of words into syllables at the end of the line, and the formation of margins at the top, bottom, and sides of a page should be considered as items needing special attention. Principles of arrangement as followed in the art course should be applied to this feature of handwriting. In this way, two purposes will be served: namely, correlation and attainment.

P. Individual writing difficulties. Each pupil should realize his individual handwriting difficulties, and develop the habit of continually striving to correct them.

By the use of some diagnostic scale, the pupil should discover the defect in his own handwriting which is most detrimental to his progress. Then he should study all of his pronounced defects in the light of previous instruction, or with the teacher's help, to learn the causes of his defects. Plans should be made at once to overcome these defects and a sample of the pupil's present handwriting should be retained as a means of comparison. If possible, a graph should be kept by each pupil to show his progress. This graph may be so arranged that the pupil will be able to see whether or not he has made any progress in the various factors of handwriting, such as size, slant, spacing, letter formation, etc.

Q. Self-diagnosis of errors. Each pupil should have the realization of a plan for self-diagnosis, and the habit of using it until his quality meets the school requirements.

The pupil may take a written paper from any school subject and count off twenty words. After the twentieth word, he should place a perpendicular pencil line to serve as a signal to stop. This much material should be investigated critically for errors, one type being dealt with at a time. On a page of his notebook, the pupil should make a diagram like Figure 6.

ELEMENTS TO BE SCORED	PERFECT SCORE	HANDWRITING SCORE						REMARKS
		9/10	11/12	12/20	2/5	3/17	5/12	
1. <i>Size</i>	20	8	12	14	17	17	17	$\frac{7}{10}$ Practice size
2. <i>Slant</i>	20	10	10	13	15	16	15	$\frac{11}{12}$ Slant-closings
3. <i>Color</i>	20	11	12	9	13	14	14	$\frac{7}{10}$ Color-closings
4. <i>Closings</i>	20	9	9	10	14	15	15	$\frac{3}{5}$ Endings
5. <i>Endings</i>	20	10	12	16	12	13	15	$\frac{3}{17}$ The goal!
TOTAL	100	48	55	62	71	75	76	$\frac{5}{12}$ Endings improved

Fig. 6—Self-diagnostic Score Card

As a basis for comparison in working on the five points listed in the diagram, the pupil should use a good textbook and not depend entirely upon the teacher's direction.

1. The pupil should then examine each of the twenty words on his paper for correctness of Size. The code number 1 may be used for Size. A small figure 1 should be placed at the right of a word in which the letters deviate from the proper size. As soon as the size of one letter in the word is found to be wrong, the small figure 1 should be placed after that word immediately. The pupil should then examine each of the twenty words for size, scoring each word that has one or more letters incorrect in this respect. When this step is completed, he should count the unmarked words and record the number after the word Size in his notebook. For instance, if twelve words contain letters that are incorrect in size, there will be eight words with no 1's after them; therefore, 8 will be the pupil's score for Size on that paper.

2. The pupil should then examine the selected words for Slant. The first letter in a word which is made with incorrect slant will cause the entire word to be marked wrong. The code number 2 may be used for Slant. A small figure 2 should be placed at the right of each of the words containing any letters that are incorrect in slant. When the twenty words have been examined, the number of words having no 2's after them will indicate the score for Slant.

3. Words should then be examined for Color. The first letter in a word having shaded downward strokes will cause the entire word to be marked wrong. The code number 3 may be used for Color. A small figure 3 should be placed after each word that contains one or more shaded letters. The number of the unmarked words will determine the score for Color.

4. Words should next be examined for Closings. The following letters should be checked for closings: a, d, f, g, k, o, p, q, s, as well as the letters j, y, and z, in which the lower loops may be considered not closed if the lines which form the loops are not crossed. Such loops should also be checked. The code number 4 may be used for Closings. After each word containing an unclosed letter, there should be placed a small figure 4. The number of the words having no 4's after them will give the number to be used as a score for Closings.



Fig. 7—Illustration Showing Places in Letters Where Accurate Closings Are Necessary for Legibility

5. Finally, the Endings of the words should be examined. The endings of all letters should, to be correct, have the height of the small letter i, except in the case of the final t and d. The final d drops downward with a curve that swings toward the right. The final t finishes with an over stroke half the height of the t. Finishing strokes which do not turn up far enough and those that are too long should be considered wrong. The code number 5 may be used for Endings. After each word with a wrong ending, there should be placed a small figure 5. The number of words having no 5's after them will constitute the score for Endings. When the score for this item is set down, the column containing the five numbers should be added; the total will be the pupil's score for the specimen examined. The factor in which he scores lowest should be the one to receive first attention for correction.

Any one, or all, of the five salient points in this scheme for scoring may be changed at the discretion of the teacher. If the majority of pupils maintain a fair degree of accuracy in any one of the features examined, the teacher may substitute, at another time, others which she wishes to stress. For example: Smoothness, Quality of Line, Spacing, Shape, or Alignment, may be substituted for any of the above.



Fig. 8—Illustrating a Method of Marking the Elements in a Section of a Sentence

R. Individual scoring. Each pupil should have a realization of his own handwriting score and the reasons for its being such as it is.

Some sort of handwriting scale should be provided by the school so

that the pupil may measure his own results. When he realizes that he is below the standard set for the business position—bookkeeper, sales clerk, etc., toward which he is aiming, he should, by means of a diagnostic scale, endeavor to locate his defects and learn their respective causes by diagnosing a specimen of his handwriting. Gray's Score Card, Freeman's Diagnostic Scale, or any other standardized plan for diagnosis may be profitably used. A record of this particular score and the causes which contributed to it should be kept by the pupil. With a knowledge of his outstanding faulty tendencies in mind, the pupil should formulate some plan for the correction of his outstanding errors.

S. Analysis of the Ayres Scale.

1. A standard of quality 70 on the Ayres Scale defined. All pupils should realize that a quality of 70 on the Ayres Handwriting Scale, Gettysburg Edition, assumes that the following standards have been established:

- a. Seventy per cent. of the letters formed correctly.
- b. The intermediate letters t, d, and p all made in the right proportion to the minimum and loop letters.
- c. The lower and upper loops conform to the correct size.
- d. Uniformity of slant maintained throughout the specimen.
- e. Excellent spacing between words and letters obtained.
- f. The quality of line kept uniform in color and width.

The 70 specimen on the Ayres Scale has one outstanding fault—angularity.

III. Miscellaneous.

A. The left-handed pupil. Left-handed pupils should realize that it is possible for a left-handed person, by means of good muscular arm movement, to produce a high quality of handwriting. The following general rules should be observed by the left-handed pupil:

1. As to paper. Reverse the position used when a person is writing with the right hand. This will bring the paper into a position that admits of the proper position of the hand on the paper, which is under the line of writing.

2. As to movement. Pull back toward the left elbow in making the downward strokes. Gliding on the nails of the left hand and pulling down in the right direction will give an even movement that produces uniform slant.

3. As to hand and pen position. Keep the left hand in a position similar to that used by a right-handed pupil; the top of the penholder, however, will point over the left arm, somewhere between the elbow and shoulder.

4. As to habit formation. Constantly aim to secure the correct position of hand, pen, and paper for left-handed persons, and strive to develop the right direction of movement in all handwriting practice.

B. Character and handwriting. All pupils should realize that peculiarities in letter formation do not necessarily denote character.

Character is the sum total of one's experiences, not of one's eccentricities. The teacher should explain the difference between individuality and eccentricity. A very heavy pen produces a heavy line, which causes the loops of the letters to become closed and the overstrokes indistinct. This renders the writing difficult to read and is no indication of a particularly strong character, as any weakling can produce heavy lines by using a heavy pen. Neither large writing—by which is meant writing that is too large for the space—nor writing that is too high and narrow, is indicative of individuality, but rather of poor judgment on the part of the writer in the arrangement of the writing material.

C. Good handwriting and brain power. Every pupil should realize that good handwriting is largely a matter of using one's brain.

No one ever uses his brain to its fullest capacity. All have millions of undeveloped brain cells. Therefore, everyone may use his brain more than he does. The brain controls the movements of the body; and, since writing is the result of muscular coordination, whatever we want to make our muscles do, we can. If one wants to be a good writer, all he has to do is to write well every time. As in learning to swim, dance, skate, etc., a person must desire to master the art, then study the necessary movements and proceed to practice in the right way until the necessary coordinations are acquired.

D. Devices. The use of devices in the handwriting class arouses interest and furnishes a temporary motive which may be used until the pupils have developed a better motive; namely, the real desire to improve until he becomes a good writer. When the inspiration has been established, the artificial means used to inspire may be discarded. Some practical devices that may be used are:

1. General:

a. Issuing certificates at the end of the grade term.

b. Granting handwriting diplomas at the end of the high school course.

- c. Having contests between pupils in one class or between classes in a school.
- d. Awarding prizes.
- e. Forming handwriting clubs.
- f. Carrying out a project.
- g. Keeping honor rolls.
- h. Displaying exceptionally good papers in the classroom.
- i. Socializing the handwriting lesson.
- j. Having a handwriting day in the school assembly.
- k. Having a handwriting display in a public school exhibit.
- l. Letting pupils use the scale and keep the record of improvement themselves.
- m. Encouraging pupils to do handwriting work at home by grading the specimens brought to class.
- n. Having pupils talented in art make drawings that illustrate both the right and the wrong position of the head, hand, arm, back, and feet.
- o. Telling stories that demonstrate the value of good handwriting in the practical world outside the schoolroom.
- p. Separating the class into groups and having the good writers assist by setting copies and showing hand position and arm movement for the poorer writers.
- q. Promoting from one group to another according to the merits of the pupils' work.
- r. Getting pupils to observe the writings of professional penman and to analyze specimens of the correspondence of the average business or professional man of today.
- s. Publishing a page of handwriting news in the school paper.
- t. Prevailing upon large department stores during anniversary week to give inside exhibits of handwriting or window demonstrations of pupils writing at desks and sitting in the correct position.
- u. Getting newspapers to write articles on "What is Being Done in Handwriting in the Schools," in which reference is made

to pupils who excel in handwriting work. Printing the names of pupils who are writing at, or above the grade standard is a stimulating reward.

v. Getting pupils interested in the signatures of other persons; for example, of noted doctors and lawyers, government officials, motion-picture stars, etc.

w. Displaying posters featuring handwriting.

E. Graphs. No device used in the teaching of handwriting serves to arouse or renew the interest of the pupil like a graph on which he records his progress. The pupil who has a clear idea in his mind of what his practice is expected to improve and who keeps a record of that improvement has a much greater chance of progress than the pupil who just practices. A graph may be used to show the progress of the individual or of the class in both speed and quality; of improvement in each of the factors on which good handwriting depends; or for any other purpose for which the teacher may care to use it in connection with this subject.

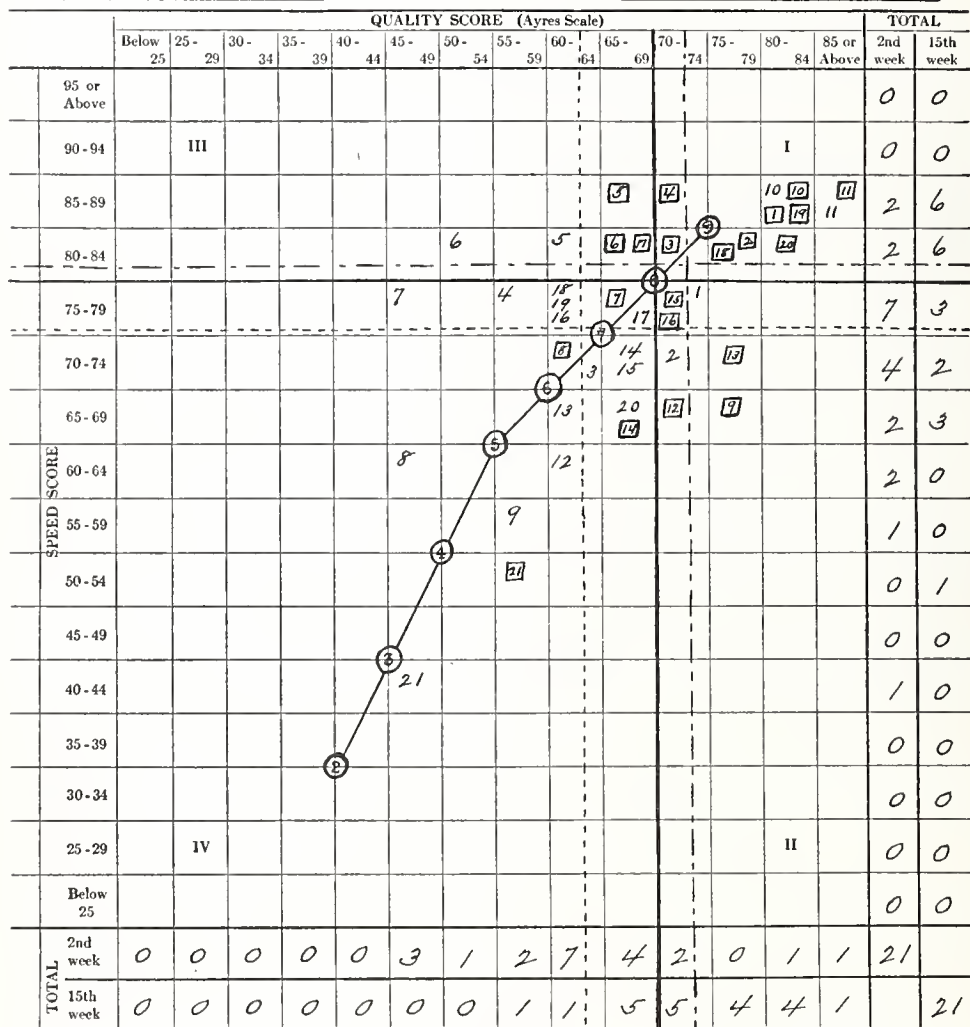
Each pupil should have an individual graph to keep in his notebook. If cross section paper, on which the graph is usually made, cannot be obtained, the pupil may rule his own notebook and make his own graph.

Either the straight line graph (Fig. 9) or the block diagram (Fig. 10) may be used to record both speed and quality. The straight line graph is the easier since it can be made by any pupil in a short time. It will be more effective if colored crayons are used, although lines of two types may be used advantageously.

School Roosevelt
 Grade 8 B
 Teacher J. Allen
 Term Ending June, 19-

HANDWRITING CLASS GRAPH

CLASS SCORE			
	2nd week of term	15th week of term	
Median Rate	75.4	81.2	
Median Quality	63.2	73.5	
Number Efficient	2	9	
% Efficient	9.0	42.8	



KEY: O Shows Standard in Speed and Quality for the Grade Indicated
 I-Above Standard in Quality and Speed
 II-Above Standard in Quality-Below Standard in Speed
 III-Below Standard in Quality-Above Standard in Speed
 IV-Below Standard in Quality and Speed
 V-Code Number Enclosed Indicates End of Term Standing

LEGEND: ————— Grade Standard
 ----- Early Term Median
 - - - - - End of Term Median

Fig. 9—Illustrating a Straight Line Graph

Teacher J. Allen

Test	Date			Medians			
				Class		Standard	
	Mo.	Da.	Yr.	Rate	Qual.	Rate	Qual.
1	2	12	30	75.4	632	80	70
2	3	26	30	79.2	70.1	80	70
3	5	20	30	81.2	73.5	80	70

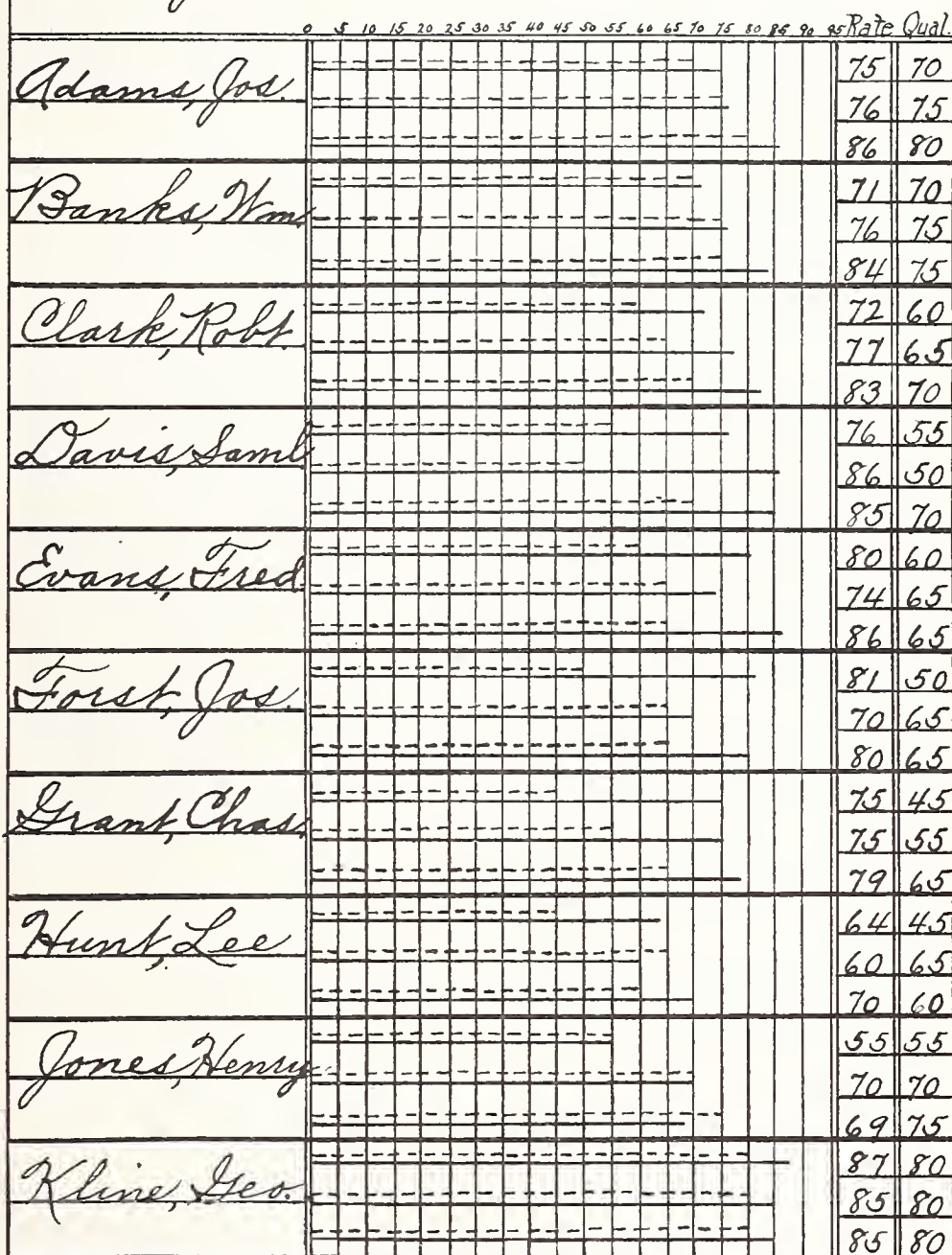


Fig. 10—Illustrating the Use of a Block Diagram

Directions for posting pupils' scores on the class graph are as follows:

Early Term Testing:

1. The standard for each grade is indicated by the position of the encircled numeral, e. g., (7) indicates that the close-of-term standard for Grade 8 is Rate 80, Quality 70.

2. Locate the position of the standard for your grade and draw a heavy horizontal line and a heavy vertical line through the encircled numeral, reaching out to the limits of the graph. This will divide your graph into 4 sections as follows:

- I. Above standard in quality and speed.
- II. Above standard in quality—below standard in speed.
- III. Below standard in quality—above standard in speed.
- IV. Below standard in quality and speed.

3. Assign each pupil a code number, and enter the code number for each pupil on the chart at the position determined by the results of the early-term test in handwriting (2nd week of term). This should be done in blue or black ink. For example, for a pupil scoring a speed of 44 and a quality of 50, find the row labelled 40-44, then run your finger along this row until you come to the column headed 50-54. Record the pupil's code number in this column. Follow each code number by a dash (—) to separate it from other code numbers which may be inserted later.

4. When the code numbers of all the pupils have been entered, count the number of pupils whose score positions are indicated in each horizontal row, and record the sum in the "Total" column at the right. Follow similar procedure with the vertical columns. The sum of the horizontal totals should equal the sum of the vertical totals.

5. Find the median speed.

a. Find $\frac{1}{2}$ the sum of the entries in the vertical "Total" column at the right.

b. Begin at the lower end of the column and add upward until the addition of the next number will exceed the $\frac{1}{2}$ sum.

c. The median is in the next group not added.

d. Trace across to the left of the graph to find the speed score of this group. The interval is five units. Find the exact median.

e. Record the median speed score at the upper right of the graph.

6. Find the median quality.

a. Find $\frac{1}{2}$ the sum of the entries in the horizontal "Total" column at the bottom.

b. Begin at the left end of the horizontal "Total" row and add until the addition of the next number will exceed the $\frac{1}{2}$ sum.

c. The median is in the next group not added.

d. Trace up to the top of the diagram to find the quality score of this group. The interval is five units. Find the exact median.

e. Record the median quality score at the upper right corner of the graph.

7. Locate the point on the diagram at which the horizontal line representing the median speed score and the vertical line representing the median quality score intersect. Draw dotted lines. Encircle the intersection point and insert the grade and section. Thus the position of the median score of the class may be readily compared with the standard for the completion of the grade.

8. Find the efficiency.

a. Count the number of entries in the section labelled I, indicating scores reaching or exceeding the standard in speed and quality.

b. Find what percent. the number of pupils in Section I is of all pupils tested; this percentage represents the efficiency of the class in handwriting, i. e., the percent. of pupils who are at or above standard.

c. Record "efficiency" as a percent., in the upper right corner of the graph.

Close-of-Term Testing.

Follow procedure indicated above for Early-Term Testing, using same code numbers for each pupil, but making records in red ink or crayon so that close-of-term records may be distinguished from the early-term records.

F. Handwriting survey. If a superintendent, principal, or teacher desires to learn where the pupils under his jurisdiction stand in the subject of handwriting, a survey test may be given at any time. If the principal desires to know the quality of the writing being done in other subjects by pupils of his school, he may ask the English department to furnish him with papers from each class. Each paper should have written on it, in a place where they may be easily seen, the name of the pupil, the date, and the number of letter of each section. Neither

the teachers nor the pupils need know the purpose for which the papers are to be used. The papers should then be scored and tabulated according to what the director in charge of the test wishes to find out. If it is desired to find the quality and the speed rate of the pupil's writing, a timed test will be necessary.

1. Place given. The test should be given in a room equipped with a type of desk that will insure the comfortable seating of the pupils while writing; and each desk should be fitted with an inkwell.

2. By whom given. When possible, the test should be given by the teacher in charge of the handwriting or by someone who understands the principles of testing as applied to handwriting.

3. Preparatory drill. A copy of the selection to be used should be given to each pupil a few days before the test so that he will have time to memorize it. If this precaution is not taken, the rate secured will be a copying rate rather than a writing rate. On the day preceding the test, the selection assigned should be practiced as a formal writing lesson; the pupils should write for two, three, or five minutes, according to the choice of the school administrator who designed the test. When the time is up, the pupils should be taught how to reckon their speed. (See section 7, page 26.)

4. The selection to be written. The material to be written by the pupils should be one that can be memorized easily and should contain no spelling difficulties that would retard the natural speed of writing. The first sentence of the Gettysburg speech is often selected by schools which use the Ayres' Scale for measuring. A short stanza from some well-known poem, the school creed or code, the Ephebie oath, or some valuable prose selection may be selected with much profit.

5. Time required. Two, three, and five minutes have been used as test periods. Some teachers like a short period, others a longer one. The time should be uniform throughout the school so that the results may be compared.

6. Preparatory directions. Each pupil should be supplied with the necessary writing materials. An extra supply of pens and paper should be held in reserve by the teacher for emergencies.

When the writing materials have been distributed and the pupils are seated in a good writing position, the teacher should give directions something like the following: "The purpose of this test is to measure the quality and rate of your writing. Write plainly. Do not waste any time. Do not hurry. We shall write the same selection that we practiced yesterday, a copy of which you have on your desk. If you misspell a word, do not take time to correct it; just

write the next word. Your spelling will not affect your writing score. Write your name on the first line; the date, grade, and section on the second; and do not begin to write the exercise until you are given the signal Go."

The teacher should see that each pupil is following directions, and should continue thus: "Leave the third line blank. Get the hand in position for writing. Start on the fourth line when I say Go and continue writing until I say Stop. Begin to write the selection over again if you finish it once before I say Stop." Then the direction Ready is given, and a second later the signal, Go.

The teacher should be provided with a stop watch. If this is not possible, a watch with a large dial and a second hand should be used, in which case the teacher should say Go on one of the five-second divisions and immediately record on a slip of paper, or on the blackboard, the exact time, minute and second, that the test begins. The teacher should watch the time very closely, and at the expiration of the time, call Stop.—Pens down.

7. Scoring for speed. Pupils should begin to score their own papers for speed by counting the number of letters written and recording this number in the upper left-hand corner of the paper; they should then divide the number of letters written by the number of minutes consumed in the writing of the test. The result of the division shows the speed per minute. This score should be verified by an exchange of papers among the pupils.

An efficient plan for the rapid checking of the speed score is to have the selection copied on the blackboard previous to the giving of the test and to place after each word a small figure denoting the number of letters written up to the point where each figure stands. An illustration of this method is given at the bottom of the Ayres Scale for Measuring Handwriting. Its use lessens the danger of any drastic errors in counting.

8. Scoring for quality. In a survey test, the quality should be scored by a teacher or a committee of teachers. If possible, each paper should be given two scores by each scorer. One score should be derived by beginning at the lower end of the scale and moving upward, and the other, by beginning at the higher end of the scale and moving downward. These scores should be averaged and the result recorded in the upper right-hand corner of the paper. The treatment of the score from this point on depends upon the purpose for which the survey was given. If the superintendent wishes to learn whether or not classes should be organized in the high school, he will want to know the number of pupils who are writing below the standard quality. The results of the tabulation will determine his decision. If a principal wishes to know which pupils should

be enrolled in the handwriting class, he can get the names from the papers with the scores below the standard. If a teacher wishes to know which pupils need definite types of instruction, he should analyze the papers and group them on a block diagram and thus divide the class into four instruction groups. Within these groups the teacher may make individual corrections much more easily and effectively than when handling the class as a whole.

G. Applied writing. Much is heard on all sides about the correlation of the work of the handwriting class with the written work done in other classroom work and during study periods; in other words, educators are very much concerned about the carry-over of the handwriting into other subjects. It is perfectly proper that they should be. Correlation, carry-over, application to all writing, or whatever we wish to call it, can be brought about only through the faithful coöperation of the teachers of all other subjects with the handwriting teacher, and of the handwriting teacher with the supervisor of handwriting. The principal can aid greatly by helpful encouragement, shown through personal interest, and by judicious praise of noticeable improvement. The superintendent who, by his sympathetic attitude, places his stamp of approval upon this phase of school work and acknowledges its importance in the school curriculum, can do much toward implanting in the pupils' minds a strong desire to maintain a high standard in all the applied writing he has to do in school. This tendency toward a high standard, having been established by the pupil in the schoolroom, is very likely to be carried over into the applied writing he will be called upon to do after he leaves school—which, after all, is the ultimate goal of all teaching of handwriting.

The handwriting teacher, in order to further this project, may (1) occasionally collect geography and vocabulary notebooks and mark report cards by them; (2) post carry-over work of a high type on bulletin boards for exhibit; (3) check language papers each month for handwriting; (4) ask that the spelling lesson follow the writing lesson whenever possible; (5) request a set of history test papers for examination at an unexpected moment; (6) give pupils an exercise in writing some personal experience in the handwriting class in order to test the quality of their writing when done under the pressure of mind concentration.

The principal may (1) see that the study room is well equipped for the carry-over of handwriting; (2) interest his teachers at frequent short meetings; (3) place before teachers some good books or magazine articles on the matter of carrying-over the handwriting; (4) have all test papers and notebooks that are marked below grade by the handwriting teacher sent to him that he may have a consultation with the pupils who wrote the papers; (5) request that all spelling test papers

be sent to him one month, geography the next month, history and language at the end of other months, and return these papers to their respective owners with some favorable comment or constructive criticism.

The superintendent may (1) speak to principals in general conferences of the importance of correlating the handwriting with other subjects; (2) refer them to authoritative writers; (3) call their attention to the results of surveys; (4) make mention in general letters to principals of any improvement that has been reported to him or that he has noted; for example, he may commend schools in certain districts which stand out in this particular respect, or he may mention having seen especially good work in applied writing in other cities.

BIBLIOGRAPHY

HISTORY

- Clodd, Edward—The Story of the Alphabet. D. Appleton & Co., 1900.
Mason, W. A.—History of the Art of Writing. D. Appleton & Co.
Thompson, Mary E.—Psychology and Pedagogy of Writing. Warwick and York.

PSYCHOLOGY AND METHODS OF TEACHING

- Alltucker, M. M.—Teaching of Handwriting. National Educational Journal, January 1927. Vol. 16: 25-6.
Ayer, F. C.—Attainment of Objectives in Handwriting. Elementary School Journal. September, 1927, Vol. 28: 45-53.
Charters, W. W.—Teaching the Common Branches. Houghton-Mifflin Co., 1924, Chapter 2: 34-60.
Cubberly, E. P.—The Principal and His School. Houghton-Mifflin Co., 1923, Chapters 21-22.
Freeman, F. N. and Dougherty, Mary L.—How to Teach Handwriting. Houghton-Mifflin Co., 1923.
Hiles, Leta Severance—Penmanship Teaching and Supervision. Jesse Ray Miller, Los Angeles, California.
MacLean, H. B. and Arnold, Frank H.—Penmanship Stories. A. N. Palmer Co.
Mallory, Pearl I.—Teachers' Handbook of Methods in Penmanship Instruction. A. N. Palmer Co.
Palmer, A. N.—Questions Relating to the Teaching of Practical Penmanship Answered by A. N. Palmer A. N. Palmer Co.

- Peterson, John O.—Plainer Penmanship for High Schools and Junior High Schools. Bruee Publishing Co., 1925.
- Pitman—Successful Teaching in Rural Schools. American Book Co.
- Shaw, Vivian M.—Legends of Letterland. A. N. Palmer Co.
- Starch, Daniel—Educational Psychology. MacMillan Co., 1919. Chapter 17: 297-321.
- Strayer, G. D.—Brief Course in the Teaching Process. (The Drill Lesson) MacMillan Co., 1913. Chapter 4: 41-49.
- Taylor, Jos. S.—Educational Value of Muscular Movement Writing. A. N. Palmer Co., 1910.
- The Supervision and Teaching of Handwriting. Johnson Pub. Co., Richmond, Va., 1926.
- West, Paul V.—Correcting Faults Revealed by Diagnosis; Remedial and Follow-Up Work. Bulletin No. 2, Public School Publishing Co., 1926. 16 pages.
- Zaner, Chas. Paxon—Blackboard Writing. Zaner-Bloser Co., 1911.

LEFT-HANDEDNESS

- Parson, B. S.—Left-Handedness. MacMillan Co., 1924.
- Palmer, A. N.—Changing Pupils from Left to Right-Handed Penmanship. A symposium. Teachers' Guide. A. N. Palmer Co.

MEASUREMENT

- Kirk, John G.—Measuring Handwriting. Industrial Psychology. May, 1928.
- Monroe, W. S., DeVoss, J. C. and Kelly, F. J.—Educational Tests and Measurements. Houghton-Mifflin Co., 1917, Chapter 4: 155-91. Revised Edition, 1924. Chapter 4: 155-204.
- Paulu, E. M.—Diagnostic Testing and Remedial Teaching. D. C. Heath & Co.
- Starch, Daniel—Educational Measurements. MacMillan Co., 1916.
- Thorndike, Edward L.—Means of Measuring School Achievement in Handwriting. Educational Administration and Supervision, 1915. 1: 300.
- West, P. V.—Elements of Diagnosis and Judgment of Handwriting. Remedial and Follow-up Work, Handwriting Bulletin No. 1. Public School Publishing Co., 1926, 22 pages.

- Improving Handwriting Through Diagnosis and Remedial Treatment. *Journal of Educational Research*. October, 1926, Vol. 14: 187-198. Also published by Public School Publishing Co.
- Wilson, G. M. and Hoke, E. J.—How to Measure. MacMillan Co., 1921, Chapter 3: 23-57.

SCALES, TESTS, ETC.

- Ayres, L. P.—A Scale for Measuring Handwriting of Adults. Russell Sage Foundation, Bulletin No. 138.
- Measuring Scale for Handwriting—Gettysburg Edition. Russell Sage Foundation.
- Courtis, S. A.—Standard Research Tests in Writing. Courtis Standard Tests, Detroit, Michigan.
- Standard Supervisory Tests in Writing. Courtis Standard Tests, Detroit, Michigan.
- Handwriting Samples of Known Value (25) A. and C. Courtis Standard Tests, Detroit, Michigan.
- Courtis, S. A. and Shaw, Lena A.—Scale of Ability to Score Handwriting. Courtis Standard Tests, Detroit, Michigan.
- Freeman, Frank N.—An Analytical Scale for Judging Handwriting. *Elementary School Journal*, April, 1915. Vol. 15: 432. The scale is published by Houghton-Mifflin Co.
- Freeman, Frank N.—A Chart for Diagnosing Faults in Handwriting. Houghton-Mifflin Co.
- Kansas City, Mo.—Handwriting Scale. Bureau Research & Efficiency. Public Schools.
- Leamer, Emery W.—Diagnostic Practice Sentences in Handwriting. Public School Publishing Co.
- Palmer, A. N.—Palmer Method Standards for the Evaluation of Efficiency in Handwriting, A. N. Palmer Co.
- Pressey, S. L. and L. C.—Chart for Diagnosis of Illegibilities in Handwriting. Public School Publishing Co.
- St. Louis, Mo.—Handwriting Scale. Board of Education, St. Louis, Mo.
- Starch, Daniel—A Scale for Measuring Handwriting. *School and Society*, 1919, Vol. 9: 154-58, 184-88.

SCALES AND TESTS—DISCUSSION

- Johnston, Joseph H.—A Comparison of the Ayres' and Thorndike Handwriting Scales. (Containing a table of equivalent values in the two scales). North Carolina High School, Bulletin, October, 1916.
- Starch, Daniel—Methods in Constructing Handwriting Scales. School and Society, 1919. Vol. 10: 328-29.
- Thorndike, E. L.—Handwriting. Teachers' College Record, March, 1910, Vol. 2, No. 5.

SURVEY

- Kirk, John G.—Survey to Determine Grade Standards. Journal of Educational Research. March-April, 1926.
- Koos, Leonard V.—The Determination of Ultimate Standards of Quality in Handwriting for the Public Schools. Elementary School Journal. February, 1918. Vol. 18: 423-446.
- West, Paul V.—Changing Practice in Handwriting Instruction. Educational Research Monographs, No. 9. Public School Publishing Co., 1927.
- Wiatt, R. E.—The Aftermath of a Penmanship Survey. National Association of Penmanship Teachers and Supervisors. Proceedings, 1927.

RESEARCH

- Gates, A. I.—A Study of Writing Ability and Its Relation to Other Abilities Based on Repeated Tests During a Period of Twenty Months. Journal of Educational Psychology, April, 1924. Vol. 15: 205-16.
- Gesell, Arnold L.—Accuracy in Handwriting as Related to School Intelligence and Sex. American Journal of Psychology. July, 1916. Pages 394-405.
- N. E. A. Committee on Curriculum—Research in Constructing the Elementary School System (Quality and Speed). Third Yearbook, N. E. A., Department of Superintendence, 1925, Chapter 6.

MAGAZINES

- The American Penman—A. N. Palmer Co.
- The Business Educator—Zaner-Bloser Co.

